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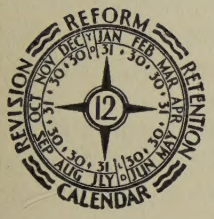

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HUMANITY MARCHES WITH TIME

By CHARLES FRANCIS POTTER

As founder of the Humanist Societies which are becoming an important factor in religious life throughout America, and author of the popular text book on "The Story of Religion," Dr. Potter speaks with a definite authority on the part played by the calendar in the development of civilization. He is a graduate of Bucknell University, and for many years occupied a professorial chair at the famous Antioch College. His Sunday lectures on Humanism, delivered in Steinway Hall, New York, are a feature of present-day culture in the metropolis.

A PERSON who had studied the history of the gradual development of the calendar might be inclined to infer that the calendar is a product of civilization, but a more penetrating observer would reply that the opposite is also true—civilization is a product of the calendar. Of course, many other factors have entered into the making of civilization, but man's progress has depended greatly upon the evolution of his time-consciousness. As man has perfected his calendar, so has he made possible the building-up of his world. And when he decides to replace his present inadequate calendar with a better one, he may expect a corresponding improvement of his civilization.

There are certain obvious immediate benefits to be derived from the adoption of The World Calendar which almost anyone of intelligence will grant—the equal quarter-years, the balanced structure, the perpetual form, the stabilization of holidays, the reduction of uncertainty to a minimum,

and the simple method of intercalation by one yearly and one quadrennial holiday. But there are other benefits, subtle, imponderable, and psychological, which should not be overlooked, for in the long run they are even more important and valuable.

Men everywhere will congratulate themselves when The World Calendar becomes an actual accepted reality instead of the hope and aspiration of a few forward-looking reformers. Always an intelligent minority anticipates and agitates until the sheer weight of logic compels the rest to accept the overdue and much-needed reform. Then when the new order is established and generally accepted, the *hoi polloi* say to themselves, "Weren't we wise to do this thing?"

It has long been evident that our present calendar has become inadequate and outgrown. It does not fit our modern living. This is the age of electricity, but our calendar is a relic of the days of tallow-candles, ox-carts, and stage-coaches. Modern business and commerce find this ancient system of measuring time cumbersome, irritating, and frequently handicapping because of the delays it causes.

It would take a large group of expert calculators years to estimate the waste of time, energy, and nervous force caused in the last hundred years by the irregularities of our present months, which vary in length from 28 to 31 days, our uneven quarter-years, and our peripatetic Easters, which may come almost any time within 35 days.

When we are released from the irritations, conscious and unconscious, provoked by the vagaries of our inherited calendar, we will all feel a sense of relief and will tackle with more hope the multiple problems yet to be solved. There is a sense of psychological and spiritual triumph which pervades all mankind when the combined intellect and good sense of human beings has been exercised to take a step forward in civilization by removing a common handicap. That feeling of victory encourages us to proceed with other needed reforms.

Moreover, the world-wide adoption of The World Calendar will extend and deepen the sense of unity and interdependence among all men, and will tend to remove the frictions and differences which divide us.

The old story of the Tower of Babel and the confusion of tongues is commonly recognized these days as an allegory, but it did put in dramatic story form the great truth that when men cannot understand each other, chaos results in human relations. We have, therefore, a sacred duty as human fellow-inhabitants of this planet to do all we may to remove from our communications those customs and institutions which unnecessarily divide us from each other. Surely, at this stage of the world's progress, we have arrived at the period when we can agree upon such a common matter as the measurement of time. The time-experience is, of all human experiences, the one which is universal, and is felt and recognized by all.

We can achieve solidarity in the counting of our days and years, since every inhabitant of the planet must necessarily accept them as of the same length, determined by the very revolutions of the planet itself. If we feel that we must retain certain prejudices of race, color, nationality, politics, and religion, we can, at least, agree upon the matter of the calendar, which can be accurately determined by the science of astronomy.

And it well may be that when we come to agree upon this one thing, a world calendar, we will discover that some of the other things which have hitherto so lamentably divided us can also be reconciled upon a common basis and in the light of the new planetary consciousness born of a system of time-measurement agreed upon by all nations.

It is well known to experienced arbitrators that when warring groups or hostile individuals can be brought to agree in even a small particular of the matter under dispute, it is frequently possible to proceed therefrom to the settlement of the entire difficulty. With that fact in mind, some of us who are hoping and working for world peace look upon the adoption of a world calendar as the initial step toward the long-dreamed-of brotherhood of man. It is well within the realm of possibility that future historians will look back upon January 1, 1939, the proposed date for the establishment of The World Calendar, as the golden day marking the beginning of a new era of world consciousness.

Exactly one hundred years ago William Miller was prophesying that the end of the world and the second coming of Jesus Christ would come in the year 1843. That prophecy was based on a misunderstanding of the meaning of certain Biblical passages, and its failure of fulfillment brought disappointment and chagrin to many ignorant and deluded folk.

Today many of us are hoping that January 1, 1939, will mark the beginning of a new world of human cooperation. We do not expect the advent of this new era to be marked by signs and wonders in the heavens and we are not depending upon celestial visitors to inaugurate the new dispensation. We believe rather that the common sense of mankind can be depended upon to recognize the obvious benefits to be derived from an improved and systematized world calendar, which will be the first step toward international cooperation in other matters of mutual interest.

Then let those who abhor the fratricide of war, those who deplore racial animosities, those who fear the destruction of our civilization through the present rivalries and hostile attitudes of nations, those who seek the unifying of religions, hoping "that they all may be one"—let all these blessed dreamers and idealists cooperate and concentrate upon the tangible, definite, concrete, and practical first step toward all these unifications, and work for the speedy adoption of The World Calendar.

Calendar reform is a sign and an expression of man's evolution. When primitive men first became dimly aware of the succession of day and night

and learned to expect the coming of the warming sun after the cold darkness, they were laying the foundation of a consciousness of duration and order. The continuity of existence was forcing itself upon their attention. The dawning recognition of order was strengthened when they learned the succession of the seasons. The ripened fruits of autumn, the return of the sun and the lengthening days at the winter solstice, the up-springing vegetation of springtime, and the heat and attendant efflorescence of nature at mid-summer—these seasonal joys doubtless inspired the feasts and celebrations which soon took on religious connotations and gave rise to the first calendar of the seasons, which much later became the "church year."

By that time early men had begun to recognize the alternate waxing and waning of the moon. Studying the lunar phenomena led them to observe the motions of the stars. Sun, moon, and stars were three visible means of reckoning the passage of time, and the various attempts to reconcile the different time periods derived from these three sources have occupied the calendar makers from that time to this. Only in our own day has a solution of these difficulties become possible in The World Calendar.

Civilization is making us time-conscious, and our evolving time-consciousness is enabling us to develop our civilization. The ever-improving calendar is man's own home-made tool for carving out his own thought- and culture-world. The present calendar is too blunt and dull and inaccurate for modern use. Calendar reform will sharpen and "true" it for better work and finer tasks.

Man's task of making himself at home in the world in which he finds himself is one to challenge all his powers, and man owes it to himself to make use of the best tools available, and also continually to improve those tools. The main problems of what is called civilization are problems of shaping environment to meet growing needs of man's evolving spirit.

To put it in another way, the chief mission of man, if he would make his world serve his needs and furnish him comfort and support, is to reduce chaos to order. William James once said that to an infant the world is a big, blooming, buzzing confusion. As the child grows and learns, the confusion lessens as he begins to perceive the underlying order, and as he himself reduces the confusion about him and in him to the order which is the unity of his own emerging personality.

It was so with primitive man. The story of the evolution of human civilization is the record of order emerging from chaos. It is literally true that to our earliest human ancestors the earth was without form and void, and darkness lay on the face of the deep. The first light in that darkness, the first order in that chaos, penetrated and illuminated the childlike mind of proto-man when he perceived that a period of light followed by a period of darkness made one round, or day, and the next light and darkness made a second day. In other words, the basis and groundwork for the calendar

was being laid: man was becoming time-conscious. As he became aware of the great principle of duration, continuity of events, or time, then, in that instant, chaos began to recede and order began to emerge. Civilization had commenced.

But how long and exasperatingly slow has been the process since that day! Every tribe of men has had its own method of reckoning time, and has been jealous and zealous to defend that particular method. Eclipses which interrupted with unexpected variations the orderly procession of alternate light and darkness gave rise to fears that the very end of the world had come. So closely has man connected the calendar with the stability of existence itself that he has bitterly resented every attempt to improve the calendar and has considered any change to be a fundamental and extremely dangerous heresy.

This intimate connection between the time-consciousness and the sense of security is one of the most deeply imbedded feelings of racial man. Indeed, it probably roots back in the long ages before man was man. Who shall say that the animals are not aware of the alternation of heat and cold in the seasons, or that the fishes are not conscious of the rhythm of the tides? Buried deep in every cell of our bodies is an inherited response-pattern reacting to the light and dark of day and night, and to the heat and cold of summer and winter. Inherited instinct and acquired habit combine to make us time-conscious before we are conscious of anything else. The weather is the natural conversation-topic.

The real psychological reason why men have fought calendar changes is because they have thought that those who were trying to improve the calendar were trying to alter time itself! Of course, the reformers of our calendars have simply been trying to make our inherited methods of time measurement correspond more nearly to true time. But so fixed are the diurnal, lunar, seasonal, solar, and sidereal rhythms in our racial consciousness, and particularly in our racial subconsciousness, that the mere mention of a proposed change in the length of a month, for instance, produces an immediate, hostile, unthinking reaction, as truly instinctive as the bristling of a dog's neck hair or the ruffling of a rooster's hackle when security seems threatened.

But roosters and dogs soon learn to welcome as a friend the person whom they first resented as a suspicious stranger. Patient education will gradually convert opponents of calendar revision. Great progress in that direction has already been made.

Success will come to the advocates of The World Calendar when due recognition is taken of the fact that the very thing which leads some persons to oppose calendar revision should lead them to welcome it. The desire for security is ineradicable. It is also praiseworthy, for on it depends the very existence of the human race. We defend our safety with

a natural intensity so strong as to amount to fanaticism. Tampering with time-reckoning seems like disturbing the equilibrium of the very earth on which we live. No wonder we resent anything which seems like rocking the boat. But let the revisionists point out the fact that there is a leak in the boat, a leak which they propose to mend, and the obstructionists will change from enemies of calendar reform to allies.

If we are sailing our boat by a chart so complicated and complex that we lose valuable time in mathematical calculations, and if, moreover, every passenger on the boat has to have an individual chart in his cabin which he has frequently to consult before he knows what day it is, it certainly stands to reason that we all should welcome those who offer us a chart, adequate, accurate, and so simple a child can memorize it with his ABC's.

Here, at last, is security for our time-consciousness—a year-clock for all the inhabitants of the world—a unifying instead of a divisive influence. It is a logical outgrowth and perfection of the common calendar of Christendom, and its adoption will enable civilization to take a long step forward.

OBITUARY NOTES

CONGRESSMAN ANTHONY J. GRIFFIN, one of the foremost advocates of calendar reform in the House of Representatives, died on January 13 at his home in New York City. In November of last year he wrote, regarding calendar reform: "I am very glad indeed to get the resolution adopted by the General Convention of the Protestant Episcopal Church. I have long been an advocate of the 12-month plan of calendar reform and shall do all I can to promote its adoption."

JUDGE ANDREW ALEXANDER BRUCE, president of the American Institute of Criminal Law and vice-president of the National Committee on Uniform State Laws, died in Chicago on December 6. He had been a member of The World Calendar Association since 1931 and was an enthusiastic advocate of the 12-month revision.

AXEL GERFALK, secretary of the Danish Commission on Calendar Reform, died of heart disease at his home in Copenhagen on March 25. He had a long and distinguished career as a journalist, and was president of the American Club of Denmark. He was a lecturer at London University in 1917-18 and chief of the press department of the Danish government in 1919.

REAR ADMIRAL ARTHUR L. WILLARD of the U. S. Navy died in Washington on April 7. He had been a member of The World Calendar Association since the early part of 1932. He held the cross of the French Legion of Honor and many other foreign decorations.

CHARLES A. BOSTON, former president of the American Bar Association, died at his home in New York City on March 8. He brought the subject of calendar reform before the Bar Association in 1931, instituting a three-year study of the subject, and was himself an influential advocate of The World Calendar plan.

JANE ADDAMS, world-famous social worker and a long-time advocate of calendar reform, died on May 21 in Chicago. As the founder of Hull House she set a model for all modern social service methods. Shortly before her death she wrote to The World Calendar Association: "I shall be happy to do whatever is possible to aid in your undertaking."

LATIN-AMERICAN ACTION

By Charles C. Sutter

Director of The World Calendar Association

THROUGH the well-organized channels of Roman Catholic opinion in Latin America, a definite program aiming at a larger participation by that church in the movement for calendar reform has been launched during the past few months. The effect of the program was evidenced in March, when Dr. Ismael Gajardo Reyes, chairman of the Latin-American committee for calendar reform, made a tour of most of the fourteen countries represented on his committee, acting as the authorized representative of the Chilean government.

"My tour was undertaken for two main purposes," Dr. Reyes stated. "First, to learn the official opinion of the leading South American governments; second, to ascertain more definitely the opinion of the Roman Catholic Church.

"On the latter point, I was able to reach certain clear conclusions. One of these was that the Roman Catholic clergy in South America is not only informed and interested—but distinctly favorable to the adoption of a new calendar. All the priests with whom I discussed the matter, in various parts of South America, were in favor of reforming the calendar on the basis of the plan proposed by The World Calendar Association.

"A similar result came from my visits to the great Catholic universities. There can be no doubt that the attitude of the Church is every day more favorable to this plan. Church leaders point out that, purely from a liturgical standpoint, it will facilitate the practice of all religious services.

"As to the hierarchy, the governors of the Church, I can also speak with assurance. Most of our Latin-American committees on calendar reform, in the principal countries, include on their active membership prominent representatives of the Church.

"For instance, the Chilean committee is under the distinguished chairmanship of the eminent Salesian priest, the Reverend Father Valentin Panzarasa, who has discussed the subject of calendar reform with the Apostolic Nuncio in Santiago, Monsignor Ettore Felice. From the Nuncio comes the information that His Holiness, Pope Pius XI, finds the plan of The World Calendar very practical and convenient, and sees no dogmatic objection to it, or to the fixation of Easter on April 8."

Added strength is given to this statement, if any is needed, by the recent utterances of members of the hierarchy in various Latin-American countries. From the Mexican Apostolic Delegate and Primate of the Church in Mexico, the Most Reverend Leopoldo Ruiz y Florez, Archbishop

of Morelia, comes this definite statement: "I think the reform of the calendar advisable and the best plan that of The World Calendar. Time will come when this idea will win."

One of the leading members of the Church in Venezuela, the Right Reverend Sisto Sosa, Bishop of Cumana, says: "The reform of the calendar seems to me of immense value, especially with reference to the liturgy. In the near future the bishops of Venezuela will hold an Episcopal conference and impressions will be exchanged on this very important matter. On my part, the project has all my sympathy, and if the other Venezuelan bishops are of the same opinion it will give me the greatest pleasure to bring the matter to the attention of the Holy Father."

From the Right Reverend Severiano Sainz, Bishop of Matanzas, Cuba, comes the following statement: "I have come to the conclusion that it is far better to have our feast days definitely fixed beginning with Easter Sunday. In the division of the months, I do prefer to keep the existing arrangement of 12 months with the variations proposed by The World Calendar, four months of 31 days and the rest 30 days."

The Right Reverend Alejandro, Bishop of Matagalpa, Nicaragua, recently stated: "I wish to say that we regard this matter as very important and shall study it very carefully."

The tour of South America, just completed by Dr. Gajardo Reyes, is perhaps the most important development in world-wide calendar reform since the League of Nations meeting in 1931. On this trip, the Latin-American chairman was accompanied by the writer, who thus had an opportunity to observe at first hand the attitude of leading churchmen and governmental officials toward the movement. It is not too much to say that the Latin-American countries now form a solid bloc, which can be depended upon to appear in any future international conventions on this subject as a spearhead of advocacy of the 12-month equal-quarter plan.

For many years Dr. Gajardo Reyes, former Commander in the Chilean navy and director of the government astronomical observatory, has been interested in calendar reform. Because of his conviction that calendar reform was desirable and because of his belief that, of the two plans of reform advocated, the 12-month equal-quarter plan of revision was the more moderate, the less revolutionary, the more acceptable to the Latin-American people, he undertook to organize the Chilean people in an educational campaign to show the advantages of calendar reform and, if possible, to spread this knowledge to peoples of neighboring Latin-American states. Dr. Reyes' interesting discourses on calendar reform and its benefits to Latin-American peoples began to make their appearance in scientific journals in various parts of South America. They attracted the attention of statesmen and public leaders.

Early in 1934 Dr. Reyes formed the *Comite Latino-Americano del*

Calendario Mundial, with headquarters in Santiago. As a nucleus, he already had a national Chilean committee under the presidency of the eminent Salesian priest, the Reverend Father Valentin Panzarasa. Dr. Miguel Cruchaga Tocornal, Minister of Foreign Affairs of Chile, had become interested and had ordered an official study of the subject by Dr. Alejandro Serani, Minister of Labor. The latter's report to the Foreign Minister said in part: "This Ministry finds this reform of such manifest convenience, both for commercial life and business, as well as for the welfare of the working class, that it represents an advantage of great benefit to all nations. . . . In consideration of all these facts, this Department has the honor to request the Ministry of Foreign Relations to recommend this project to the consideration of the League of Nations, issuing instructions for the Chilean Delegation to favor this project before the League."

This report resulted in official action by Chile, approving calendar reform and the 12-month equal-quarter plan of revision, and news of this action was promptly forwarded to the League of Nations.

With this progress in Chile, other Latin-American states began to show a cooperative interest. Voluntary organizations, for study and promotion, began to be formed. Bolivia organized a calendar reform committee under the presidency of Senor Moises Santivanez of the Bolivian State Department, with representatives of education and business.

In Panama a similar interest was crystallized in the formation of a committee under the presidency of Senor Octavio Mendez Pereira, with a supporting group which included the official representation of Prof. Catalino Arrocha, Director of Public Instruction.

Costa Rica formed a committee under the chairmanship of the Minister of Education, Dr. Teodoro Picado. This group correlates the activities for calendar reform in the four sister Republics of Central America—Guatemala, Honduras, San Salvador and Nicaragua.

Later, the progressive Republic of Uruguay formed a committee under the presidency of Prof. Alberto Reyes Thevenet, representative of Uruguay at Geneva. This committee also undertook to bring calendar reform to the attention of the people of Paraguay, with a membership representing astronomy, education and business.

The activities of these various committees soon culminated in interest being aroused in the great Republic of Brazil. A very strong organization was initiated under the presidency of Capitan Radler de Aquino, a distinguished scientist. Dr. Sodre da Gama, Director of the Astronomical Observatory of Rio de Janeiro, a scientist of world-wide reputation, and Jose Frazao Milanez, representing the navy, became members of this committee.

Dr. Eduardo Posada, greatest living Latin-American historian, in announcing the organization of a Colombian committee, said: "I have always been interested in calendar reform, and I find this new project very proper

and wise. It is the one which will at last solve this complicated problem. The 13-month plan had its advantages, but the inconvenience of 13, which is not divisible into halves and quarters, made it impracticable. The new calendar which we are favoring fortunately continues the useful division of the year into 12 months." Other members of his committee are Dr. Jose Alvarez Lleras, Director of the National Astronomical Observatory, General Carlos Cortes Vargas, and Colonel Luis Acevedo F.

The network of Latin-American committees was completed by the organization of Argentina and Mexico. The former group is headed by Lieut.-General Luis Dellepiane, former Minister of War, and includes prominent representatives of science, education, business and the Church. In Mexico the committee on this subject is under the chairmanship of Dr. Joaquin Gallo, and includes the Ministers of Education, Economics and Foreign Affairs. This committee has already taken full official action, presenting to the Mexican government a motion for the notification of the League of Nations that Mexico definitely approves The World Calendar.

All these activities are linked together and coordinated by the central committee under Dr. Reyes, whose tour of South America was undertaken for the sole purpose of making the united Latin-American effort promptly and fully effective. In each country which he visited, he held conferences with the local committees and with various interested groups. He addressed audiences at the leading universities, held press conferences, and delivered a number of effective speeches over the most important radio hook-ups.

Dr. Reyes has a charming and commanding personality. His long-standing prominence in the Chilean government gave him an official welcome at each capital he visited, and his naval record—particularly his liaison service with the British navy during the World War—commanded military and naval honors wherever he went.

An example of his activities during his trip was his appearance over a special radio hook-up in Buenos Aires, where the facilities of the Argentine stations were reinforced by arrangements for rebroadcasting his address to Chile and Brazil. He was introduced to his unseen audience by General Dellepiane. The latter, in a brief address, pledged the most earnest efforts of the Argentine Republic on behalf of the movement for calendar reform, which he termed "a part of humanity's struggles for progress and welfare, for justice and truth." Dr. Reyes' address, delivered in Spanish, occupied about 30 minutes. He said in part: "The reform of the calendar, in which we are interestingly engaged, should be carried through and put in practice, because the present Gregorian Calendar, in use in almost every civilized country, has several defects, which are hampering the progress of the world and therefore should be corrected. All these defects are unnecessary and they can be overcome very easily by the

adoption of The World Calendar, which will give us a perpetual calendar with balanced and equal semesters and quarters.

"The great advantages of this plan can be seen at a glance. In the first place, it has a perfect symmetry and it achieves this perfection with a minimum of alteration or disturbance. Only seven days will be changed in the 365 days of the year. February will receive two additional days; March will lose one; April will gain one; May and August will lose one. The last day of December will become the *Dia del Ano* (Year Day).

"The great Republic of Argentina, justly proud of its great literary, political and military genius, Sarmiento, who established the two beautiful, edifying and wonderful statements of educational logic—*'Gobernar es Educar'* (to govern is to educate) and *'Escuela es un Santuario'* (school is a sanctuary), has determined to undertake leadership for the establishment of a new calendar, acceptance of which will be of unquestionable benefit to commerce, agriculture, industry, science, religion, education and the international relations of all civilized countries. Such leadership by Argentina is just and proper, for the Argentine mind has always led our continental aspirations. To prove this statement, it will be sufficient for me to pronounce one name: that name is Mitre, and in its five letters is condensed the story of a virtuous life, full of noble aspirations and labor. I am convinced that Argentina will render a good account of her leadership for the reform of the calendar, for she is known throughout the world as a protector of science, a lover of progress, and a school of great statesmen."

In Montevideo the Uruguayan committee informed Dr. Reyes that it has presented to the government of Uruguay a report on calendar reform, urging official approval of the 12-month equal-quarter plan of revision. Prof. Thevenet informed Dr. Reyes that the government is expected to act immediately in accordance with this report, and to issue corresponding instructions to its delegate at the League of Nations. Inasmuch as the Geneva delegate happens to be Prof. Thevenet himself, it may be assumed that the instructions will be efficiently and enthusiastically carried out.

An important meeting of the calendar reform committee of Brazil was held in Rio de Janeiro on Dr. Reyes' arrival there. Under the presidency of Capitan Radler de Aquino, plans were made for an educational campaign to inform the people of Brazil of the benefits of the reform of the calendar. The campaign includes a program of discussions among the great scientific, educational, religious and business groups of the country. This program was formally launched by a radio broadcast from all the important stations in Brazil, disseminating addresses delivered from the Radio Club of Brazil. Dr. Reyes was the principal speaker, introduced by Senor Jose Frazao Milanez, prominent naval officer. The latter emphasized the need for a full Brazilian cooperation in the movement for reform of the calendar. "A general cooperation is required," he said, "so that the adoption of The

World Calendar may be carried out on the date of January 1, 1939, as this date falls on a Sunday and thus the change from the old system to the new could be made without difficulty."

Dr. Reyes, in his address, stressed the fact that the Brazilian committee constituted "a very homogeneous group of scientific and educational leaders." He then told his audience of the progress accomplished in other Latin-American countries: "The government of Venezuela, through the authorized word of the Minister of Foreign Relations, Dr. Itriago Chacin, has already given its official approval to this plan. In Mexico the government has, through three of its leading ministers, given definite approval to The World Calendar. Uruguay has adopted it also.

"The attitude of the Catholic Church is every day more favorable to this plan, as the stabilization of Easter will facilitate greatly the practice of all religious services. A practical calendar for all the seasons is of such immense and incalculable benefit for all the religious, civil and social activities of Latin America that it is not possible really to calculate, at this time, the far-reaching results that it will have. It will bring harmony into human life; it will make for a stronger and more substantial equilibrium on which to establish the stability of all civilization, the welfare of mankind and even the peace of nations.

"An agreement should be reached with regard to calendar reform in the Fifth General Conference on Communications and Transit to be held by the League of Nations in 1936. This agreement will take the form of an international treaty which, when duly ratified by the legislative bodies of the various nations, will become law in all countries. This treaty will provide for all the changes and modifications necessary in the transition from the old to the new calendar. All the nations, all the religious bodies, and all national and international organizations, as well as every individual, should actively cooperate in seeing that this international agreement is ratified as soon after 1936 as possible.

"Toward this goal all the efforts of the nations, of the calendar reform organizations, of the churches and of all individuals should be directed, in order to give to future generations a calendar which will be the most perfect system for measuring time which knowledge of man can devise."

Dr. Reyes' tour was followed by invitations to lecture in the near future at the Universities of Rio de Janeiro, Montevideo and Buenos Aires. Entirely satisfied with the results of his meetings with the various calendar reform organizations throughout Latin America, Dr. Reyes feels certain that the republics of Latin America will present a united front for a reform of the calendar along the lines of a 12-month equal-quarter plan of revision, and that these states will be among the leaders in the world in supporting an international conference, called for the purpose of legislating this reform.

INTERNATIONAL DATE-LINE

By James L. C. Ford

DISCUSSION of calendar reform proposals, which stabilize the year by making the last day of December a "double Saturday," has focused considerable attention on the mysteries of the international date-line in mid-Pacific, where a "double day" is encountered by every traveler crossing from China to America.

Inasmuch as a revision of the calendar now appears to be inevitable, it should be interesting to get a clear idea of the effect of the double day, as indicated in its daily use of this device by travelers.

For many years I crossed the Pacific yearly. When I was ten years old, the double day impressed itself indelibly on my mind because it brought me a double birthday, with two successive birthday dinners and a double set of birthday presents. What more could a ten-year-old boy desire to fill his heart with joy and wonder?

My tenth birthday was Sunday, April 7. I was aboard the steamship President Jackson, bound from Shanghai to Seattle. The chef in the dining salon had baked a magnificent and highly decorative birthday cake for the occasion, and all my shipboard acquaintances had provided presents. Waking the next morning, I started reading the ship's paper, and the first thing that hit my eye was that it was dated "Sunday April 7," the same as yesterday. A little concentrated thinking, and I realized that this was the customary double day, marking the crossing of the international date-line along the 180th meridian.

I decided that I was entitled to another birthday celebration, and within the next two hours I convinced everybody concerned that my viewpoint was justified. There was an exact duplicate of the previous day's cake, and the passengers who had given me presents cheerfully repeated their performance. A good time was had by all, and none of us will ever forget this example of the workings of the international date-line.

This imaginary division, where the day begins, is a device created by the scientists and geographers and calendar experts. Oddly enough, it has hardly any legal status in terms of international law. It exists, like Magna Carta, by overwhelming sanction of long-standing general acceptance.

Roughly speaking, it coincides with the 180th meridian. But this coincidence is broken, for good and sufficient reasons, at both the north and south by two little zigzag notches. On the north it cuts out at a sharp angle, so as to put Siberia entirely on the west, and the Aleutian Islands entirely on the east. On the south it zigzags between Samoa and Fiji.

A remarkable illustration of its workings came to the attention of newspaper readers very recently. On April 25, 1935, the first two-way

telephone conversation around the world took place in New York City, when two officials of the American Telephone and Telegraph Company, using telephones only 50 feet apart, talked over a 23,000-mile telephone and radio circuit. The electric loop began and ended in the office of the telephone company. The voices girdled the globe in a tiny fraction of a second. One official spoke over a wire routed through San Francisco, Java, Amsterdam, London and back to New York. The other replied over a circuit that girdled the globe in the opposite direction, via England, Amsterdam, Java and San Francisco.

When Mr. Gifford, president of the telephone company, began his conversation at 9:30 New York time, the clock in San Francisco read 6:30 a.m., and the one in Java 10 p.m., while Big Ben in London tolled 2:30 p.m. In crossing the international date-line, the voices of the two Americans went from today into tomorrow and then back into today again before reaching their destination. "This is another step in the conquest of time and space by man," said Mr. Gifford to us of the press who were listening.

The international date-line is about 400 years old. It was 400 years ago that exploration caught up with science, and created in the minds of men the need for such an adjusting device. Suddenly coming into being at that time, it has been accepted ever since as a matter of course. Mariners have figured by it, the British Admiralty has outlined its accepted path by written order, individual countries have adapted their clocks and calendars to it. Every American newspaper reader comes in contact with it when he reads in his Monday paper an item or two of news which happened in Japan on Tuesday.

But not every newspaper reader understands the whys and hows of the meridional line which causes this paradox. He knows that there is such a thing, but the precise workings of it are as complicated to the uninitiated mind as the sailor's port-and-starboard are to the landlubber.

Here is a somewhat graphic parable form of explanation, as suggested by Roscoe Lamont in an excellent paper in *Popular Astronomy,* which seems to me to clarify the way the international date-line operates:

Suppose an aviator, Wiley Hawks, starts in his airplane on a round-the-world trip from London at noon on Monday, July 4. Heading westward, suppose his airplane covers exactly 15 degrees of longitude daily. There are 24 such longitudinal divisions, as the globe is divided into 360 degrees of longitude, so he should complete his trip and be back at his starting point in 24 days—or Thursday noon, July 28. The flier makes his trip as scheduled, covering 15 degrees daily. But in so doing, his day is 25 hours long, for when a person travels westward he lengthens his day by one hour for every 15 degrees, moving along with the motion of the sun.

Our slow but sure Wiley Hawks returns to London, he thought on

Thursday, July 28, having passed 24 days of 25 hours each, or 600 hours, en route. His friends in London also have lived 600 hours, but at the rate of 24 hours per day. They therefore congratulate him on returning Friday, July 29. He shakes his head in surprise and disagreement. But all the weight of evidence is against him. It must be July 29. Somewhere he slipped up in his calculations. He makes up his mind to try again.

Off he starts, traveling west again at the same rate of speed. This time he leaves London on Monday noon, August 1. After 12 days of 25 hours each, he finds himself at the 180th meridian. It is Saturday noon, August 13, and 300 hours have passed since Wiley Hawks took off from London. For his London friends, 12½ days have passed, making it Saturday midnight, August 13. Our flier does a little thinking, decides to call it Sunday noon, August 14, which would put him 12 hours ahead of London time. The 12 hours are absorbed by 12 days more of traveling for 25 hours each day, and Wiley Hawks lands once again in London and compares times with his friends. They agree! It is Friday noon, August 26.

So that is how the international date-line works. Wiley Hawks has proved it to himself; he has figured out the mystery of the day change.

The change could have been made anywhere, but as Wiley Hawks found out, the day first began at the 180th meridian, Sunday, August 14, having come into being there 12 hours before his arrival. Unless our flier changed his dates at that particular spot, his day after leaving the date-line would not have agreed with the day of countries over which he traveled. If Wiley Hawks had flown east instead of west, his day while traveling would have contained only 23 hours and only 552 hours would have been spent in circumnavigation. Therefore, when crossing the international date-line, the same day of the week and month would have to be counted twice. In other words, he would have gained an additional day or a double weekday.

The advantages of the location of the international date-line in mid-Pacific are obvious: it passes through vast expanses of water, uninhabited except by whales and occasional speeding liners. Therefore the change of date is not a source of constant confusion and shift for many people.

All parts of the earth cannot have the same day except for an instant. The meridian where the day is first ending has another meridian adjoining it on the east where the same day is just beginning. It is Sunday in New York before it is Sunday in Chicago. It is Sunday in London before it is Sunday in New York. Just where does Sunday begin? As our flier, Wiley Hawks, found out, Sunday, or any other day, begins at the international date-line. In fact, this characteristic gives the line its name—day dates from that point.

When Sunday begins at the international date-line, all the rest of the world still is in Saturday (that is, if the line coincided exactly with the 180th meridian—which it does not—and using local time). Sunday then

continues to begin in regular sequence westward around the world as each succeeding point passes the midnight hour of Saturday. Between the hemispheres stretches the line, an invisible but important rampart, separating the days. When all the world to the east of the international date-line is ready for Sunday to begin, the date-line itself has passed through all of Sunday and is ready for Monday.

Because of the variance between the 180th meridian and the irregular international date-line, each day lasts for 25 hours and 12 minutes. For this reason, three different days exist at the same time. When it is 12:01 a. m., Wednesday, at Cape Deshnef, Siberia, it is 11:17 a. m., Tuesday, at Greenwich, England, and 10:49 p. m., Monday, on Attu Island at the extreme west of the Aleutian group.

An interesting summary of the nature of the international date-line comes from Percival Lowell, the Far Eastern traveler: "The line is imaginary; it has not even an astronomical reason for existence, like the equator. It is purely and entirely an arbitrary convention; and yet its position is of exceeding importance to mankind. From the very convenience of this position we are apt to forget its value; for the line is the great day-origin. It sets, not the time of day merely, but the day itself. At the line two days meet. There, though time flows ceaselessly on, occurs that unnatural yet unavoidable jump of 24 hours and no one is there to be startled by the fact—no one to be perplexed in trying to reconcile the two incongruities, continuous time and discontinous day. There is nothing but the ocean and that is tenantless."

History tells of the reactions of the first men to come in actual contact with the phenomena of changing days involved in round-the-world voyages. Away back in the early 16th century, when Magellan led his little group of Spaniards on the first circumnavigation of the globe, Pigafetta, one of that daring group of explorers, comments on their surprise when nearing home to learn they were a day's reckoning behind the European world:

"Finally constrained by our great extremity, we went to the Cape Verde Islands. Wednesday July 9, we reached one of these islands called Saint James and immediately sent the boat ashore for food. We charged our men when they went ashore in the boat to ask what day it was and they told us it was Thursday with the Portuguese. We were greatly surprised for it was Wednesday with us, and we could not see how we had made a mistake; for I had set down every day without any interruption. However, as was told us later, it was no error but as the voyage had been made continually toward the west and we had returned to the same place as does the sun, we had made that gain of 24 hours, as is clearly seen."

Another quaint and pertinent passage from the contemporary chronicles of that day is to be found in "The Decades of the Newe Worlde. . . Written in the Latine tounge by Peter Martyr of Angleria, and translated in to Englysshe by Richarde Eden" in 1555. It deals with the return of the vessel *Victoria* to Seville, finally completing the long voyage which Ma-

gellan, who was to die on the yellow sands of the beach at Mactan, had started:

"And amonge other notable thynges by hym (Peter Martyr) wrytten as touchynge that vyage, this is one, that the Spaniards hauynge sayled abowt three yeares and one moneth, and the most of them notynge the dayes, day by day (as is the manner of all them that sayles by the Ocean), they found when they were returned to Spayne, that they had lost one day. So that at theyr arryuall at the porte of Siuile beinge the seventh day of September, was by theyr accompt but the sixth day. And where as Don Peter Martyr declared the strange effecte of this thynge to a certeyne excellente man who for his singular lernynge was greatly aduaunced to honoure in his common welthe and made Themperours ambassadoure, this woorthy gentelman who was also a greate Philosopher and Astronomer, answered that it coulde not otherwyse chaunce unto them hauynge sayled three years continually, euer folowynge the soonne towarde the West. And sayde furthermore that they of owlde tyme obserued that all suche as sayled behind the soonne towards the West, dyd greatly lengthen the day."

It is not surprising that Peter Martyr, in the early 16th century, received such clear and logical reasoning from his "certyne excellente man", who was Gaspari Contarini of Venice, known as one of the most erudite scholars of his age. Contarini had studied at the famous University of Padua in Copernicus' day, he had written many books of history and religion. In 1535, Pope Paul III gave him a cardinal's hat and crimson robes.

Peter Martyr, intrigued with this mystery of the missing day, treats of it again in his "Fifth Decade," saying that when he heard the sailors speak of the lost day, he told them perhaps the priests aboard the Magellan ships had deceived them by omitting it from their customary religious celebrations. But the sailors ridiculed this solution, saying they surely would have known of any such omission. Had the priests omitted one day, a day of the month and of the week, either by accident or design, they would have anticipated the modern procedure in all westward crossings of the international date-line. And on landing at their home port, there would have been no discrepancy in days.

But still the inquisitive Peter Martyr was not satisfied. He gives the final report of his conclusions—which coincide with modern thought in every instance—after a weighty conference with Contarini:

"Being much disquieted and troubled with that care, I conferred with Gaspari Contarini (a man not meanly instructed in all kinds of literature), who was then ambassador with the Emperor for his famous commonwealth of Venice. Whereby we know (discussing the matter with divers arguments) that this strange report, never heard before, might very well be after this manner: This Castilian ship set sail from the Islands of Gorgades (Cape Verde Islands) towards the west, which way also the sun goeth. Thence it came to pass that having followed the sun, they had every day longer according to the quantity of the way they made, wherefore having perfited (compassed) the circle, which the sun performeth in twenty-four hours towards the west, it consumed and spent one whole day, therefore it had fewer days by one than they who have that space of time kept one certain place of abode. But if the Portugal fleet, which saileth toward the east, should return again unto the Gorgades, continuing their course unto the east by this way and navigation, now first found and discovered to mortal men, no man would doubt, seeing they should have shorter days, having perfited the circle, but that twenty-four whole hours should remain unto them over and above,

and so one whole day, wherefore they should reckon more by one. And so if either fleet, to wit, the Castilian and the Portugal, had set sail the same day from the Gorgades, and the Castilian had sailed toward the west and the Portugal had toward the east, turning stern to stern, and had returned to the Gorgades by these divers ways in the same space of time and at the same moment, if that day had been Thursday to the Gorgades, it had been Wednesday to the Castilian, to whom a whole day was consumed into longer days. But to the Portugal, to whom by shortening of the days one day remained over and above, the same day would be Friday. Let philosophers more deeply discuss this matter, we yield these reasons for the present."

The Spanish and Portuguese voyages of exploration resulted in many strange pseudo-scientific discoveries and contradictions, as man's expanding mind failed to keep pace with his expanding universe. The Philippine Islands have not always been on the Asiatic side of the international dateline although they are now. Until January 1, 1845, they were on the American side, insofar as hour and day were concerned, and had been ever since the Spaniards had settled there. But in the neighboring islands, such as the Moluccas, the Portuguese observed a calendar one day in advance of the Philippine date schedule. They had come to the Orient by way of the Cape of Good Hope, carrying out the plans of Henry the Navigator.

Back in Europe, Spain and Portugal had the same calendar and their days corresponded. Their explorers, however, had sailed to the Far East by different routes. Following the sun west, the Spaniards kept getting further and further behind the time of their home-land. The time of the Portuguese had advanced further and further ahead of that in Portugal for they had sailed toward the east, meeting the sun. When Magellan and the Spaniards reached the Philippines, they were 16 hours behind the time of Spain. The Portuguese, sailing the African route, were eight hours ahead of Europe. Thus the two colonies differed by exactly 24 hours.

Before the 16th century ended, the colonial Spaniards in Manila had adopted the Gregorian calendar, calling the day after October 4, October 15. But still the Portuguese continued to be one day ahead. The Spanish saw no advantage in reconciling the difference—their trade was principally with Spanish America. To follow the American day was more convenient than to agree with the Portuguese which would have meant skipping or repeating a day every time the Pacific was crossed.

This difference between the days of the two colonial possessions sometimes was forgotten. Thus, Acosta, Spanish historian of the 16th century, tells about a priest who set out from the Philippines for Macao. On his arrival at the Portuguese possession off the China coast, he went to church to celebrate the mass of Saint Athanasius but found he was a day too late to honor that saint. Acosta writes: "It happened to Father Alonse Sanches, of whom mention is made before, that parting from the Philippines, he arrived at Macao, the second day of Maie, according to their computation, and going to say the Masse of S. Athanasius, he found they

did celebrate the feast of the invention of the Holy Crosse, for that they did then reckon the third of Maie."

Spain's sway on the American continents weakened and eventually she lost her last colony on the western mainland after pillaging and plundering for gold and jewels. When this happened, there no longer was a close link between the Philippines and the New World and it became more convenient to have the islands and the mother country on the same side of the date line. Trading intensified through the Cape of Good Hope passage and consequently the difference in days between the two countries became more irksome. In 1844, over three centuries after the Spanish had settled in the Philippines, Claveria, Spanish governor-general, issued a decree directing that the day following Monday, December 30, 1844, be called Wednesday, January 1, 1845—skipping Tuesday, December 31, 1844. Since that time, the Philippines lie no longer in the distant West, but in the Far East, and are about eight hours in advance of their former mother country, Spain.

Another example of shifting days in countries on the border line of exploration and the date-line is to be found in Samoa, which lies just east of the date-line. Back in 1892 the King of Samoa celebrated the fourth of July twice in one week—to get over on the American side of the Line.

In the "Letters from Samoa" of Mrs. M. I. Stevenson, mother of Robert Louis Stevenson, there is a note dated "the second 4th July, 1892," which runs as follows:

> "Surely now I have been round the world, since at last I have done that to which I used to look forward. I have 'gained a day.' It seems that all this time we have been counting wrong, because in former days communication was entirely with Australia, and it was simpler and in every way more natural to follow the Australian calendar; but now that so many vessels come from San Francisco, the powers that be have decided to set this right and to adopt the date that belongs to our actual geographical position. To this end, therefore, we are ordered to keep two Mondays in this week, which will get us straight."

The use of the double day at the international date-line is a familiar example and illustration of the proposal made by advocates of calendar reform to employ a similar device at the end of each year, in order to stabilize the incidence of the weekdays throughout the year. There is no reason to believe that the adoption of such a system would not prove as beneficial as the use of the double day at the international meridian. It will enable the peoples of the world to keep time straight, to make the calendar ordered and dependable. It will regulate the calendar so that the year will always begin on Sunday, and the relationship of weekdays and month-days will be perpetually the same.

LESSONS FROM PLAYING CARDS

By Samuel Zovello

As an international student of the history of playing cards, the author has developed some highly interesting theories on the connection between playing cards and calendars. A monograph by him, published this year under the title "History and Origin of Playing Cards," discusses this subject in considerable detail. Under the stage name of "Zovello," the author has appeared in many theatres in an act featuring the magic of cards.

PLAYING CARDS, as we know them today, are probably a direct development of little one-week Egyptian card-calendars, which originally were combined into a pack of 52, to make a complete calendar for one year. The 53d card, now the joker, was originally provided to take care of the odd 365th day of the year: it was a card of good fortune.

The student of calendar reform might well go back into early Egyptian history and trace the origin of playing cards, for he may draw certain definite lessons regarding calendar reform from the story which they tell.

Knowledge of the calendar, among the ancient Egyptians, was the possession of the priesthood, carefully guarded as a religious secret by a sect of priests who were called "keepers of the days." They were the only ones who knew when to anticipate the rise of the River Nile, on which the life of Egypt depended. They alone knew when to give warning to the populace so that it could take to the hills for safety.

These priests kept the untutored masses ignorant of the calendar and thus fostered the belief that the priesthood possessed supernatural powers of divining the future. This belief was cultivated to such an extent that the masses believed the priests of Isis and Osiris could even foresee the personal future of an individual.

The calendars on which the priests relied for their predictions were, in the early days, engraved on huge stone slabs kept carefully guarded in the inner sanctuaries of the temples. With the invention of papyrus as a medium for transcription, the cumbersome and unwieldy stone tablets were superseded by rolls of papyrus, which permitted reproduction of the calendar on a smaller and more convenient record.

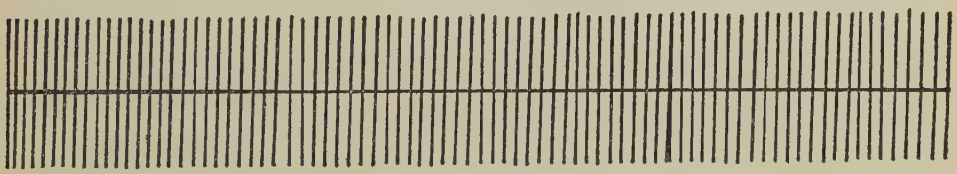
But the new calendars were almost too portable. They were easily lost or stolen, and in case of loss or theft, precautions had to be taken to prevent the new possessor from using their secret information. So the papyrus rolls were divided into sections which could easily be fitted together when the priests wished to consult them. Separation of the papyrus into weeks was the logical outcome. The calendar became a package of 52 equal strips or cards, with one extra piece for the 365th day. This extra card was made similar in size to all the others, to render the pack uniform.

Fortune-telling from cards is thus shown to be one of the most ancient developments of the use of this material. The secret of the priesthood eventually came into the hands of unscrupulous charlatans, who used the calendar cards to predict not only the appearance of a certain day or date as the time most suitable for planting, harvesting or fishing, but also any other private or public event and ultimately of course the personal fortune of any individual. The charlatans who used cards for this purpose wandered over the world during the ensuing centuries and became known as "gypsies," this word being of course a corruption of "Egyptians."

But now to get down to the history of the Egyptian calendar, and its lessons for present-day reformers. The most significant fact is this: that the Egypt of pre-history had a 13-month calendar, which it eventually rejected on the basis of increasing knowledge, replacing it with the 12-month division which is the basis and foundation of our present-day calendar. In other words, any current proposals for a 13-month year are a backward kind of reform, suggesting the restoration of a system which the scientific knowledge of Egypt displaced as awkward and unsuitable.

In the early dawn of civilization, wandering nomadic tribes were attracted to the Nile valley because of the richness of its soil and the ease of cultivation. The only drawback to this paradise was the periodic flooding of the land which constituted a grave menace to its inhabitants. In due time, however, these ancient peoples learned that the floods could be predicted, and that the climate of the Nile valley expressed itself in three seasons: first, the inundation, or period in which the fast-rising river flooded the land; second, the sowing and planting season, in which the waters subsided; third, the harvest or dry season.

Survival in that region necessitated development of a system for anticipating these changes. Observant members of the priesthood learned to foretell climatic changes by the migratory flights of birds, by the breeding habits of beasts and fish, by the positions of the sun and stars. Eventually some early scientific genius discovered that the days and nights between each constantly recurring period could be counted. The priests became counters of days, and 365 days and nights constituted a cycle, or year.

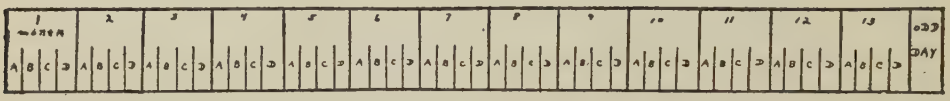


The first attempt at making a calendar must necessarily have been something like the above diagram—365 lines divided at the center, with each half-line representing a day or a night.

As time went on, this crude calendar developed by observation of the

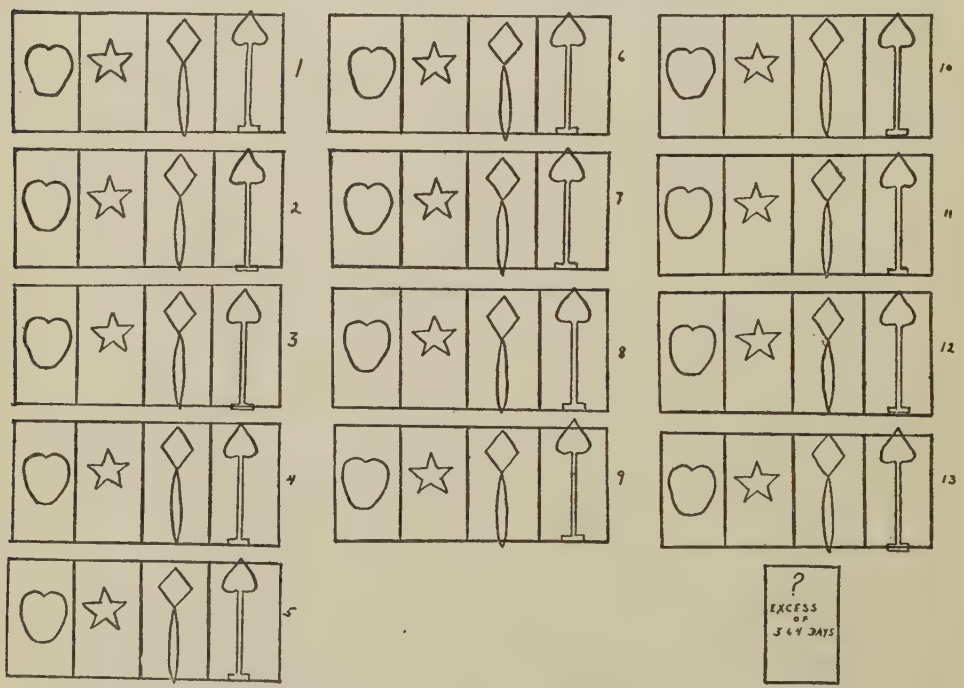
phases of the moon. From a very early period the Egyptians possessed knowledge of a 13-lunar-month year. Each month was made to consist of exactly 28 days. The 13 lunar months thus totalled 364 days, with an odd day left over.

By further observation, each month was in turn divided into four equal parts of seven days each. The calendar probably resembled the following:



Primitive Egyptian calendar: Thirteen months of 28 days each, with an extra or intercalary day at the end of the year.

Within the months it appears that each week was designated by a certain sign or symbol. The first week of the month was indicated by a cup, the second by a pentacle or five-pointed star, the third by a sword or spear-



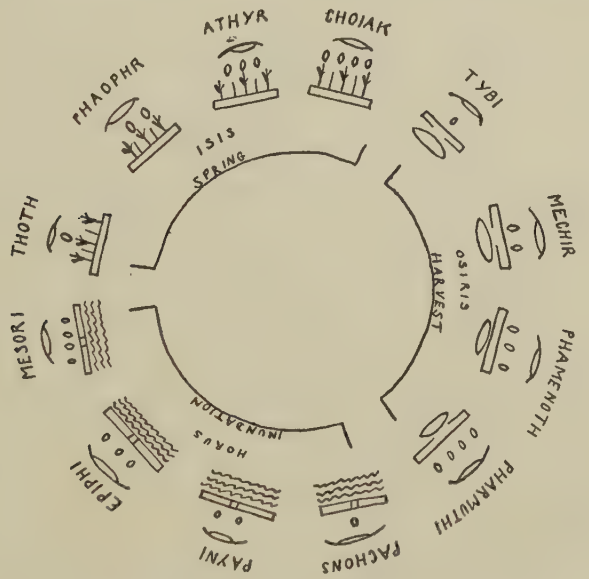
Early hieroglyphic symbols for the weeks, as grouped into months.

head, the fourth by a spade. The origin of these emblems is associated with the Egyptian belief that the universe was composed of four elements —water, earth, air and fire. The first week of every month pertained to water, the second to earth, the third to air, the fourth to fire. These ele-

ments were portrayed symbolically: the cup for water, the star for earth because the heavenly bodies were supposed to direct and control all earthly activities, the spearhead for air, and finally for fire the small shovel used for handling fuel in homes and temples. The symbolic calendar of the 13 months was essentially as shown on the previous page.

The abandonment of the 13-month calendar appears to have been simultaneous with the necessity of remedying the error which had developed from the fact that the Egyptians had hitherto used a year of 365 days, whereas the actual solar year contained 365¼ days. Every four years a complete day was lost, and over a period of a few centuries the dates of spring had been pushed into those of harvest. To King Aseth goes the distinction of having legislated this reform, installing a three-season year with four months to each season, or 12 months in all, with an occasional adjustment by the priest-astronomers to allow for what we now know as the quadrennial leap-year day.

In the hieroglyphic writings the crescent is used to indicate the moons which formerly figured in the division of the year. Ellipses beneath the



Egyptian solar calendar of 12 months and 3 seasons

crescents showed whether the indicated month was the first, second, third or fourth of the season. Wavy lines represented the season of flood, flowers spoke for spring, and the sign of harvest was a large house or granary.

Besides the hieroglyphic signs, each of the months bore a name derived from some outstanding Egyptian personality, whether mythical or factual.

Names such as Thoth, Phoaphr and Athyr originated in a manner similar to that by which we moderns have named March from Mars, June from Juno, and July from Julius Caesar. The Egyptian seasons paid tribute to Osiris, Isis and Horus, their son.

When the figures of Osiris, Isis and Horus were drawn on the papyrus card-calendars, all their attributes were included, as well as the marks and symbols which served to indicate their power and position.

In the evolution of these card-calendars into our modern playing cards, the figures, marks and symbols have been frequently altered. The first historic record of playing cards dates back to about the year 900, in India. They were introduced into Spain and Italy from Greece in the 14th century, and to this date the Spanish name for cards is "naipes," derived from the city of Nauplion, Greece. However, it was a Frenchman, Jacques Gringoner, who developed the modern playing card, using it as a means of entertaining the French king, Charles VI, during his fits of insanity. Gringoner went back to Egypt for his models and largely retained the original Egyptian calendar symbols. Our present-day pack of playing cards is an almost exact duplicate of the ancient Egyptian calendar.

The 52 cards represent the 52 weeks of the year; the 53d card or joker is the excess day over 52 weeks. Adding the value of all the cards or pips —that is, ace-1, deuce-2, jack-11, queen-12, and king-13, gives 364; the joker brings the total to 365. The suits composed of 13 cards each are derived from the 13 lunar months, rejected by the Egyptians for a more scientific and divisible calendar of 12 months. The alternating black and red colors of the cards originated from the papyrus calendar-segments, which were colored in order to differentiate the weekly sections of the calendar. The two-way design on face cards represents day and night.

The symbols on the cards have, it is true, undergone some change. The Egyptian five-pointed star was replaced by the French fleur-de-lis, now the club. But examination of any club card will show that it really is still a pentacle, each of the small circles and the two points of the base make it actually the equivalent of a five-pointed star. The sword or spearhead has been simplified into a diamond. The spade is retained, and the cup is now a heart, owing to a curious misinterpretation of the old French word for chalice, *chorur,* into *coeur,* or heart.

Among the court cards, the jack is Horus, who still in clubs and diamonds holds a rod, with which in Egyptian mythology he was supposed to measure the rising of the Nile; in spades he holds an hour glass, for he was the god of time in old Egypt; in hearts he holds a leaf, which was originally a lotus, a flower which blossomed immediately after the subsidence of the Nile waters. The Queen of the playing cards is Isis, goddess of Spring. The King is Osiris, god of the harvest, and his four cards represent the four glorious months of his section of the calendar.

PROGRESS IN CENTRAL EUROPE

by Charles Michael Meister

Associated Press Correspondent in Vienna

SUPERFICIAL observation might lead to the conclusion that the small countries of Central Europe and the Balkans would naturally be reactionary in their attitude toward the growing movement for a rational 12-month calendar. But as a matter of fact these countries—Austria, Hungary, Czechoslovakia, Rumania, Yugoslavia, Turkey, Bulgaria and Greece—are prepared to welcome the change. Though old in history, they are young as political entities, and of recent years their peoples have developed a love of progress comparable with Americans.

The fact is that an active effort to promote the proposed reform has been started in several of these countries. Greece and Turkey have official committees on calendar revision. Austria, Czechoslovakia and Yugoslavia were prominently represented by official government delegates who took a prominent part in the 1931 international conference on the subject. Rumania and Bulgaria were also represented at that conference, but did not take any prominent part. The Yugoslavian delegate, M. Djouritchitch, presided over the Preparatory Conference of 1931 as chairman. The Greek delegation, under Professor Eginitis, was equally prominent, owing to the fact that the whole activity of the League of Nations in calendar reform was started more than 10 years ago by Professor Eginitis. But the small countries are reluctant to assume actual international leadership.

Though many of them are biding their time, men fully conscious of the necessity for eliminating the inconveniences of the old calendar exist in each of the countries in this section of the Continent. Whenever any further action is taken through the League of Nations or through an international conference, they will be prepared to explain the advantages of the new calendar to their countrymen.

Many of these men see special indirect advantages in the calendar reform movement for this especially troubled section of a harassed world. Ancient rivalries and youthful nationalism have here tended to make all forms of international action more difficult. Immediate experience of the obvious advantages conferred by a uniform, unchanging calendar, it is argued, would suggest the advantages of other forms of cooperation. Rumania has already eliminated some confusion by changing from the Julian to the Gregorian calendar.

In Yugoslavia there are two calendars in current use. The court of little King Peter and the Serbian sections of the country celebrate Christmas and other religious holidays according to the dates in the Julian calendar, while the Roman Catholic sections of the same country follow

the Gregorian calendar. The Yugoslav Regency, solemnly reminded by the dying words of the late King Alexander of its duty to defend the nation's unity, has definitely stated that it would like to eliminate the double calendar, a glaring symbol of disunity.

But any attempt to enforce observance of either one of the two current calendars would open old wounds and strengthen the forces of disunity. Religious susceptibilities would be aroused, and questions of prestige would cause interminable difficulties. Therefore, world acceptance of a new calendar would be welcomed by Yugoslavia with joy. Neither the Roman Catholic Croatians nor the Orthodox Serbs could say that the government had discriminated in favor of one or the other.

Hampered ever since the war by ever-growing economic difficulties, business men of Austria and Czechoslovakia, the most highly developed industrially of the countries under discussion, also have special interest in supporting a reform which would simplify their problems. Operating in a territory in which the Julian and Gregorian calendars meet, they would gain, in addition to the benefits accruing to business men the world over, elimination of confusion in holidays due to use of both old calendars.

International groups already existing in Central Europe and the Balkans have recently indicated their desire to further speedy adherence of their members, to an international agreement on calendar reform. The Little Entente countries, Czechoslovakia, Rumania and Yugoslavia, have decided to take joint action on international affairs, and on this basis they will be prepared, whenever the question comes up, to take united action regarding calendar reform. In Greece and Turkey, the movement in favor of the balanced 12-month calendar has already attained considerable proportions. The Greek Government has acted officially in making a declaration in favor of The World Calendar, while Turkey has an active calendar reform committee under the chairmanship of Dr. Ihsan Ali, close friend of Mustapha Kemal and official spokesman of the Ankara government at all international gatherings dealing directly or indirectly with this subject. The influence of Greece and Turkey in favor of a new calendar has already had a marked and stimulating influence on the foreign offices of Rumania, Yugoslavia and Bulgaria.

While Bulgaria is not a member of the Little Entente or of the Balkan Pact, Bulgarians are the most practical-minded of the Balkan peoples, and as such have been quick to see the advantages of rationalizing the calendar. And as members of the Eastern Orthodox Church they have the same reasons as Serbs and Rumanians for supporting a change placing them in line with the western world without offending religious sentiments.

Action of the Oecumenical Patriarch in giving his blessing to the revised 12-month calendar is of the greatest importance to the three Orthodox countries, Yugoslavia, Rumania and Bulgaria. It may be ex-

pected to lead to a reconsideration of the hasty support Yugoslavia once gave to the 13-month calendar, which would add to Balkan business difficulties by offering a quarter-year of three and one-fourth months. In the Balkans the quarter-year is the important time division for accounting.

The fact that the Vatican has encouraged discussion of calendar reform within the Catholic Church and has ruled that there is no dogmatic objection to a revised calendar, is of importance in Austria and Hungary, both predominantly Catholic. Support given the reform movement by Protestant clergymen throughout the world, and by the Universal Christian Council, their world organization, has had a marked effect on their co-religionists in Hungary, Austria, Czechoslovakia and Rumania.

The support or neutrality of religious leaders is having an important effect in overcoming the Balkan peasant's inbred objections to change. The peasant parties, in fact, are all lined up in support of the proposed change. Of course the attitude of the progressive elements, sure to favor all reforms of real value, is of more importance than that of the peasants, who have little to say in the governmental affairs of any of the countries of South-Eastern Europe.

Those advocates of rationalization who recall that the two important calendar reforms of the past were put into effect by imperial decree and papal edict will not overlook the fact that such direct action is today possible in Yugoslavia, Austria and Bulgaria. The political situation is not much different in Hungary, which remains loyal to parliamentary government, but has been ruled by the same party for 15 years.

But, as was pointed out recently by the Prime Minister of one of the Balkan States, none of these small countries can be expected to take action alone, or to assume a position of leadership in a movement of world-wide scope. As creators and leaders of the Occidental civilization in which these new countries wish to perfect themselves, England, France and Germany enjoy the greatest prestige. Action already taken by leaders in these three large countries has had much effect in the smaller countries, which are ready for further suggestions from London, Paris and Berlin.

The most practical suggestion yet made for further immediate action in Central and South-Eastern Europe is that which comes from a group of leading journalists in Vienna, namely, that a permanent international committee be organized in Vienna to study the reform in relation to the peculiar conditions in this part of Europe. It is possible that such a committee could be ready to function by the beginning of the next academic year. While research work would be concentrated in such leading educational institutions as the Vienna University, the Peter Pazmandy University in Budapest, Belgrade and Zagreb Universities, and the ancient Carolus University in Prague, governments would be asked to name representatives of religion, commerce and politics to take part in the work.

MERCHANDISING PROBLEMS

By Jerome S. Schwartz

Advertising Department, R. H. Macy & Co., Inc., New York

IN the early days of merchandising, when a merchant did a business in thousands, it was not necessary to keep the meticulous records of sales, costs, taxes and other items that the present-day merchant needs with his buying and selling running into the millions. The entrepreneur of the cambric-and-gingham era made few merchandising comparisons and the only statistic that held more than a passing interest for him was the one his bookkeeper presented him showing profit or loss. Today the large merchant has a staff of trained statisticians who keep him supplied not only with the results of completed ventures but with the figures upon which he will base his future enterprises. And it is in the use of this tabulated material that he finds himself continually handicapped by the imperfections of the calendar now in use.

In all his pondering and planning and peering into the future, the retailer uses his past experience expressed in the sales of last year, last month, or the corresponding month of the last ten years, as the basis for his actions. These comparisons must be as accurate as possible, for in present-day merchandising the stiff competition between stores, especially those in the popular-price class, makes gambling and guesswork inadvisable. When the net profit returnable to the owners is sometimes as low as one per cent per turnover, figures and predictions must be accurate if any profit is expected at all.

The large retailers found long ago that they could not make accurate comparisons when the period in question differed in the number of business days from the period with which it was being paired. They therefore devised systems of keeping statistics that would make possible more logical comparisons. Such methods as the following were hit upon. The year is divided into two 26-week "seasons," the Spring season beginning on the Monday nearest February 1, and the Fall season beginning on the Monday nearest August 1. The retailer in all cases has been obliged to go off on a slight tangent from the Gregorian calendar. As a consequence he sometimes finds that his fourth week of June has three of its six business days in July.

These systems are more expedient than perfect. A major difficulty immediately ensues, because department store executives use government and other statistics which are based on periods that do not coincide with the ones they have created in their own business. They heartily wish that all compilations could be made on a single basis.

To show the inadequacies of the present calendar in retailing, a prominent department store executive recently said: "We compare our sales figures with those of other stores in our class. Suppose we find that we are not getting our share of the business in a certain line. We have been buying and selling our goods as cheaply as our competitors, but perhaps under changing conditions the location of our store is against us. We decide to change our policy and instead of handling 'better' merchandise, to sell 'bargain' merchandise. There are some things I would like to know, though, before I take a step that may cost my store millions. Perhaps I would like to find the relationship of the growing or declining industrial payroll total to the business of lower-price department stores. I would like also to see the relationship between this business and the money in circulation or the demand for various types of merchandise. Of course I can get plenty of figures, baskets full of them, but they will not give me accurate results because they are based on different periods of time, complicated by all the vagaries and inaccuracies of the calendar. The payroll total, for instance, may be based on a period from May 1 to May 30, while the figures for lower-price department store sales to which I would like to relate the payroll total, may be based on an entirely different period, with a varying number of Saturdays and Sundays. The other figures I want will likewise be only partially related. Attempts are made by my statisticians to bring the figures into relation, but the juggling must necessarily be done by arbitrary means and the picture derived from them cannot therefore be anything but arbitrary."

Under the present calendar it is particularly difficult to make accurate comparisons of sales between years for March or April. Easter may fall in either month. The retailer can say that business this March was down sharply because Easter did not come until April 21, whereas last year it was in March. He can tell that Easter in this case is a factor causing a comparative decline in sales in March. But he cannot tell whether sales would have been down anyway if the Easter factor were eliminated, that is, if Easter had been on the same date in both years. All he knows is that the wandering date of Easter has snarled up his figures for at least two months of the year, and to some extent thrown a shadow over his statistics for February and May as well. No amount of weighting, bridging or reconciling can give a correct picture.

With The World Calendar in operation and Easter stabilized, exact relationships could be established between years for daily, weekly, monthly and seasonal figures. Some adjustments would still be necessary, but simplification would mean enormous strides toward greater accuracy.

Because abnormal Christmas business makes it inadvisable to move the closing date of the fiscal year to its more usual date at the end of December, it is doubtful whether department stores will ever discontinue

their custom of closing the fiscal year at the end of January. Nevertheless, because their yardsticks would then be the calendar week and the calendar month instead of the retailers' synthetic "week" and "month," no great statistical difficulties would be created. For example, to reconcile government figures for the first six months of 1935 with a store figure for the same period would merely involve adding the store figure for the last month of the "Fall" season to the first five months of the "Spring" season.

Not until all compilations of business statistics are made in accordance with a logically devised calendar, which merchandisers can use in common with others, will statistics achieve their ultimate value in retail planning. The World Calendar would be a direct means of increasing the efficiency of these statistics. Its logical construction would definitely assist accurate predictions necessary to economical conduct of modern department stores.

The natural seasons of the year have always been important factors in retail trade. In the temperate zones merchandising depends heavily upon the fact that in cold weather certain things are used and in warm weather other things are needed. The "things" include not only clothing but almost all the other articles which department stores sell. There is winter furniture and summer furniture, there are winter perfumes and summer perfumes, beach clothes and ski clothes, formal dishes for city homes and gay china for summer cottages, indoor toys and outdoor toys. The examples are many. Retailers have come to know that clothing is not the only item the weather affects, and a department store in winter is a much different place than it is in the warmer months.

Adherence to weather changes, moreover, is becoming more and more important as the retailer finds new items to promote for special seasonal use. The proposed World Calendar would do nothing to upset this tendency, but such a scheme as the thirteen-month calendar would produce a lag between the seasons as they are fixed in the buying public's mind and as they would exist on the calendar. People by habit have come to consider June 1 as the date to begin looking about in earnest for summer things. On June 1 the weather usually shows signs of becoming something more than balmy and that date has become a signal for commencing summer buying. If June 1 were moved back 11 days, reckoning from the first of the year, it would seriously upset the date of the beginning of summer buying. There would be no definite signal such as the beginning of a month, no common agreement as to when warm weather buying should begin, because the public would often be without the stimulation of a few hot days when the traditional date of June 1 arrived.

The innovation of a strange thirteenth month called "Sol," as proposed in the 13-month calendar would add to the complexity of retail merchandising, and further tend to throw off balance established buying customs. July and August are traditionally poor months for retailers, not only

because many people are away from the cities, but because even on occasional comfortable days many customers do not come to the stores, believing that the best offerings are not made in the summer time. They refrain especially from buying such major items as radios, washing machines and furniture, except where some stores have made efforts to move this merchandise with special promotions such as August Furniture Sales. Sol, coming after the last "Spring" month, June, would be considered another summer month and prolong the midsummer agony of merchandisers.

Just as any calendar which upsets buying customs is undesirable, any revised calendar which upsets established trade practices will prove a burden. Most department stores have a backbone of "charge" customers. One New York store sends out more than 100,000 statements a month. The expense of making 100,000 additional computations and mailing 100,000 extra statements would be thousands of dollars. Perhaps more important than the actual extra expenditure would be the undesirable psychological effect on the recipients of the extra statements. People do not like to receive bills, and receiving bills 13 times a year instead of 12 would tend to reduce sales.

Mention has been made of the bad effect that the variable date of Easter has on the keeping of retail statistics. Its moving date also complicates selling, and sales can be delayed or actually lost when Easter falls in March. Retailers, especially in the northern part of the United States, are frequently faced with the strange paradox of having to try to sell warm weather merchandise in cold weather. After the expenditure of much money in advertising and other style-setting promotion work, retailers and manufacturers have advanced the seasons in such lines as millinery sufficiently to sell Spring merchandise during the winter. But this is one of the few instances in which their efforts have been successful.

Easter should be the signal for intense clothing buying, just as Christmas is the signal for a wave of gift buying. Some fashion-conscious people will buy style merchandise in anticipation of warm weather, but by far the greater number of shoppers (men notoriously), wait until the stimulus of warm weather actually strikes them to put out their good money. Fixation of the Easter date in early April would do much to insure a good demand for clothing and accessories, not at the end of winter where it must be forced, but at the beginning of Spring where it grows naturally. A saving would be accomplished in the extra expenditures in advertising designed to move buying into an artificial channel. Other savings would be made because it would not be necessary to mark down the price of large quantities of goods left on the counters because of cold weather during the buying season. Increased returns would result from allowing buying to proceed under the stimulation of the changing weather rather than under the stimulation of unprofitable "sales" designed to move goods out of season.

The perpetual 12-month calendar is a necessity in retailing. It holds the means of obtaining better statistical information and insures the making of more accurate business predictions. It does not interfere with established trade practices. It does much to promote logical buying and profitable selling, especially in the Easter period. For these reasons, the current proposals for calendar reform will be watched with interest by all wide-awake retailers.

STELLAR YARDSTICKS

A Study of Calendar Reform for Schools

By AMY MORRIS LILLIE

INTRODUCTORY NOTE

By JOHN DEWEY

Professor Emeritus of Philosophy, Columbia University

From the usual educational standpoint, the calendar is an interesting and indeed fascinating problem. We take it for granted just as we take our clocks and watches for granted. Miss Lillie has brought out in a clear and accurate way the observing and inventing that lie back of our present methods of measuring time. Since one of the great differences between savage and civilized man is that the latter works by the clock and the calendar, since all industry, commerce and social intercourse depends upon the controlled measurement of time, knowledge of the kind Miss Lillie gives ought to be a normal part of the instruction of every child.

But there is an especial reason for giving importance to instruction in this field at the present time. There is constantly growing agitation for a change in our present annual calendar. Many business houses are already keeping their books on systems different from the traditional one. The League of Nations at Geneva has had the matter under consideration. The movement will increase still more. Ultimately all authorities agree that there will be a change. In order that there may be the best possible judgment as to the kind of change to be made and that it may be carried into effect successfully, the rising generation ought to be acquainted with the problem and its factors.

Miss Lillie has made an admirable presentation, using her long and successful experience as a teacher of the young to make the approach clear and interesting. Moreover, children who become interested in discussing the pros and cons of the change and the comparative merits of different plans will have their desire aroused to learn about the important chapter of human history which is back of our present system. I cannot commend too highly to the attention of educators Miss Lillie's admirable statement.

WE ALL know what it means to measure anything with a yardstick. We use a stiff strip of wood just thirty-six inches long, with each inch marked by a line and divided into halves, quarters, eighths and sixteenths. Then we have larger divisions of the yardstick, each twelve inches long, and there are three of these which we call feet, so three feet or thirty-six inches make the length of the yardstick—no more and no less. We cannot take liberties with it by adding so much as a sixteenth of an inch: everything we measure must yield to its rigid rule, so, whether it be the material for a party dress or the tweed for a suit, just thirty-six inches are allowed to each length of the stick, and if we do not follow its measurements carefully, the dress or suit will not be a success.

We are constantly having to measure something by length, weight or quantity, but, whatever it is we use to measure with—the yardstick, the pound weight or the quart measure—the same care must be taken not to add or subtract even a tiny bit from the amount called for.

But there is a kind of measurement that has been a puzzle to people of every age, from the earliest days of man's life on the earth to our own time, and the reason is this: what they have been trying to measure just won't be fitted into any even divisions of a yardstick, and they have had to make a sort of elastic yardstick which can be stretched here or squeezed

a bit there until some kind of fit can be arranged. Now this sounds rather ridiculous until I tell you that I am talking about measuring *Time:* then it is easy to see how a very special kind of yardstick is needed, for Time is something we can't handle, and the measurement of Time has to do with the movement of stars and planets. It is a hard puzzle that man has had to work out and he has been at it for thousands of years. Many are the yardsticks he has fashioned for his use, and, because it has taken a study of the stars for him to be able to do this, I call them Stellar Yardsticks.

Of course there can be only one way of measuring Time, since we cannot handle it, and that is by discovering something which happens over and over again at regular periods, then we are able to fit the time between into whatever smaller periods we wish. For instance, in school the lesson periods are all divided between the ringing of the opening and closing bells which can be depended upon to ring regularly.

Ages ago, long before men, women and children had gathered together in towns and cities, they roamed about in little companies living in the out-of-doors and building only rude shelters when necessary. But in those far-away days, when time was not as important as it is today, men saw that they could plan their life around two things that never failed to happen: the appearance of the sun on one side of the world and, after a journey across the heavens, its disappearance on the other side, thus making periods of light and darkness. So day and night were the beginning, and later these became divided into hours, minutes and seconds.

As years went on, men changed their roaming, tribal habits to gather in villages where they could get food for themselves and their families by planting seed in the ground and raising crops. This we call the beginning of civilization. They had found out that the sun had an important effect upon the earth and also that water was needed to make the soil soft and productive, so a great deal of this settling was done near the big rivers, and the river valleys of Asia and northern Africa were the homes of the early civilizations. Two of these civilizations in particular are remembered today because of the greatness and power which came to them later. One was the civilization of Chaldea and Babylonia which grew up on the plains of Mesopotamia along the Tigris and Euphrates Rivers, and the other that of Egypt which followed the valley of the Nile River for a thousand miles into the heart of Africa. The Chaldeans were ancestors of the Babylonians so I call them one civilization. What the night watchers of the sky had discovered on the Chaldean plains was handed on to the Babylonians, who added to that knowledge and together they gave to the world of the future not only the beginnings of time measurement—our Stellar Yardstick or calendar—but wisdom on which the science of astronomy was built.

In Egypt the Yardstick was to have a new division and for a very natural reason. The Nile River flowed through miles and miles of desert

land which would never have produced a bit of grain or crops of any kind if it had not been for one thing: at certain times it overflowed its banks and spread for a great distance, covering the country with a rich deposit that made it very fertile. After the waters had gone back within their bounds again, the ground was just right for sowing seed. This flooding of the Nile happened regularly once a year, so sowing the seed and then reaping the harvest followed naturally and the Egyptians had three seasons which they called Inundation, Sowing, and Harvest, making three large divisions to their Yardstick. Then they divided the month into three parts of ten days each, probably because ten was the number of fingers on both hands and was easy to count. Here was a much more complicated Yardstick and you would suppose it might prove fairly successful in working out this time problem. But by this time it had been discovered in both Babylonia and Egypt that the sun took a little over 365 days to make its yearly journey through the heavens, and if you will multiply the thirty days in each month by the twelve months in the Yardstick, you will find it makes 360 days, which was five days shorter than it should be.

This was where some stretching of the Yardstick had to take place, and the Egyptians arranged it quite conveniently, putting the extra days at the end of the year as religious holidays.

While Egypt and Babylonia were experimenting with their Yardsticks, still another ancient civilization far to the east in Asia, was measuring time in its own way and according to the needs of its own life, for this need of daily life has been the chief reason why man has bothered to measure time at all. China was a vast empire as old or older than any of the ancient civilizations we know anything about, and it is the only one that has kept its own character to this day. Over four thousand years ago, then, Chinese astronomers were making their discoveries and their measurements of the heavenly bodies to arrive at much the same conclusions about them as the Babylonians and Egyptians, but their Yardstick was an extremely elastic affair. While the year was about the same length, and was divided into twelve months, the months were not even. One had 29 days and the next 30 and so on through the year. This was not successful every year as the sun and moon did not march in step to this tune (as indeed they do not march in step to any tune) for any length of time.

It was necessary to give the sun time to catch up every once in awhile by adding an extra lap for the moon, in other words, another month to the Yardstick. They found they had to do this seven times out of nineteen, so the years were grouped in periods or cycles of nineteen and a sort of sliding Yardstick used, pulled out to 13 months about once in three years.

Another very ancient Yardstick was that used by the Jewish Patriarchs in Old Testament Bible times. This was only five months long and each month had thirty days, making 150 days to the year, which may explain

the great ages said to have been reached by these Patriarchs in the Bible stories. With a year less than half the length of ours they might have lived many more years without having been more than seventy-five or eighty of our longer years. They probably got the length of their year from the number of full moons they could count on the fingers of one hand, for they were a nomadic or wandering people until they were taken captive by the Egyptians and learned the true length of the year.

If we jump to the other side of the world, we find on our own North American continent at an early day, although much later than the periods we have been thinking about, another people planning their Yardstick. These people are known as the Mayas and their civilization covered parts of Central America, which, as you know, is south of Mexico and tapers into a little neck of land, the Isthmus of Panama, which connects North with South America. It is not known just how old this civilization is, but at least six hundred years before the time of Christ, people were counting their days, months and years in a quaint way. They strung beads on a string for days, shells for months, while each year was marked by a jade bead. Their months had only 20 days like the number of fingers and toes on both hands and feet. There were 18 of such months which made 360 days, and five extra days, which made a short month each year.

While we are on the North American continent, I am sure you would like to know something of the way the Indians have measured time. Nobody knows just how old the Indian is, but in the southwestern part of our country there are ruins which show that centuries before the discovery of America, the Indians of Casa Grande were measuring time by sun-holes. In the mud walls of an old watch tower may be seen two holes placed so that the sun at certain times of the year sends its rays through both walls to mark a point on a third wall. This happens in March and September and was probably used by Indians to time the planting and harvesting of crops.

But there is a very practical way in which Indians of a later day have fitted time to their simple needs and it will seem like a game to us for it meant using little bundles of sticks to count their days. It was serious business to the Indians, for their food depended upon it, and every morning a stick had to be taken from the bundle on one side of the sleeping-bag and put on the other side. Five bundles each holding thirty sticks were given out when the first spring thunder brought rain. Five was an easy number to count on the fingers, and thirty, as you will have guessed, was the number of days which the Indians had discovered passed between the new moons. Perhaps you will recognize a likeness between this division and the Yardstick of the early Jewish tribes which also had five months.

Now we must jump back to the other side of the world again and look at two more Yardsticks which were used years before the time of Christ. They belonged to two very important civilizations, Greece and Rome. The

Greeks used an adaptation of the Egyptian calendar. The Romans, very early in their history, had a funny short Yardstick with only ten instead of twelve divisions. Six of these months had thirty days and the other four had thirty-one, which made 304 days to the year. But about the seventh century before Christ, a Roman king, Numa Pompilius, added two months, January and February, to the end of the Yardstick. This made a better length, but as the months were uneven, having 29 or 30 days, there were still only 354 days to the year. The Romans were constantly altering their calendar and making adjustments to suit themselves, until the time of Julius Caesar. As our own Calendar is a descendant of the one Julius Caesar finally adopted, we must see just how he went to work.

To help him in fixing up a reliable Yardstick that could not be stretched or squeezed for any personal reason, thus putting the seasons and things in general out of joint, Caesar called upon an Egyptian astronomer named Sosigenes. You will remember that Egypt had a very satisfactory Yardstick of twelve months, each having thirty days, with five extra days devoted to religious festivals at the end of each year. Julius Caesar decided to use this Yardstick but he distributed the five extra days evenly.

Our division of the month into seven-day weeks did not come until much later. The Romans kept the Egyptian division of three parts and called them Calends, Nones and Ides. Our word Calendar comes from the first of these Latin words.

While there are traces of seven-day weeks in Chaldean, Egyptian and Greek records, this division of the month comes most directly from the Jews. All through the Roman Empire were to be found communities of Christian Jews which were keeping one day out of every seven for rest and meditation. Constantine noticed what a difference this made in their lives. They were happier, lived longer, and could do more work, so he decided in the year 325 B.C. to make the seven-day week the rule in the Roman Empire, feeling it would be a great benefit to humanity. The week-day names were taken from the planets: Sun, Moon, Mars, Mercury, Jupiter, Venus, Saturn. You see this most clearly in the French language: Mardi, Day of Mars; Mercredi, Day of Mercury; Jeudi, Day of Jupiter; Vendredi, Day of Venus, etc. The Anglo-Saxon gods, Tiw, Woden, Thor, Freya, later gave to our English tongue the names of Tuesday, Wednesday, Thursday and Friday, covering up their earlier origin.

The Romans, of course, knew the sun's year to be a fraction over 365 days long, and that this fraction amounted to practically a whole day every four years, so this extra day was added at the end of the fourth year, which was known as Leap Year. Still there was a slight error which amounted to about eleven minutes each year. One would have thought this small difference need not be noticed, but as the centuries passed the minutes grew into days, until, toward the end of the sixteenth century,

the Spring Equinox had stepped ahead to March 11th instead of staying where it belonged, on March 21st. As it was particularly important to the church to keep the Spring Equinox in its place because of the celebration of Easter, Pope Gregory XIII decided to put things straight. He therefore, in 1582, issued a decree saying that the dates in October of that year should skip from the fifth to the fifteenth, leaving out ten days, and making a slight revision of the Leap Year rule. This is our present calendar.

We must now look carefully at this Stellar Yardstick, for we want to decide whether it is still good enough to measure time for the needs of our world. Throughout the ages, as we have seen, the Yardstick was satisfactory only when it fitted the needs of people and governments. It was important for people to have food, so the first Yardsticks must measure time for planting and reaping; later the Roman government and others had to plan seasons for the more complicated life of an Empire, so the Yardstick had to be changed. Today people are beginning to think that this same Yardstick is unreliable and ought to be changed again.

The truth is, the world itself is a different place than it was 350 years ago when Pope Gregory XIII put the last touches on our Yardstick or Calendar, and it is something like riding in an antique model of automobile to be using it now. This change in the world has been brought about by easier communication between all nations which modern inventions have made possible. Ages ago each community or country lived to itself alone, for there were no such things as telegraph, telephone, or even railroads. Traveling was done with great difficulty on camels or horses and took a lot of time; there were no great fleets of ships carrying people and cargoes to all parts of the globe, as travel by sea did not venture far from the shores of those countries bordering on the Mediterranean Sea: northern Africa, southern Europe and Asia-Minor. It was not until explorers started adventuring across oceans that the vast reaches of the globe were realized. By degrees through the centuries, the people of the world have been drawn together until today almost anywhere can be reached by radio.

Now a time-measuring Yardstick today, as you will easily see, must be one which can fit the whole world and not one or even several parts of it. It was all very well in the past to have Yardsticks which met the needs of certain countries, because those countries had a life of their own apart from the rest of the world, but today the rest of the world comes knocking at their doors whether they will or not, and time measurements must be alike or there will be all kinds of difficulties. In many respects our calendar is unsatisfactory. Let us look at some of its weak spots.

Suppose our Yardstick of three even feet each having twelve inches should be divided into feet of eleven, twelve, and thirteen inches. The number of inches in the Yardstick would still be thirty-six, but the foot divisions would be of unequal length, and, in measuring by feet, one would

have to know which kind of foot to use and it would mean lots of calculating. This is exactly what makes our Stellar Yardstick awkward. The twelve months of the year can be nicely divided into four parts or quarters, and the world's business is carried on, to a large extent, by quarterly measurements and calculations, but the awkward part is that the quarters themselves are not even. The first quarter (Jan., Feb., March) has 90 days, or 91 in Leap Year; the second (April, May, June) has 91 days; the last two quarters have 92 days. This also makes the half years unequal: the first half has 181 (or 2) days and the second half 184 days. Of course, the uneven months that the Roman Emperors fixed are the cause of this.

There is another inconvenient thing about our Yardstick. Every year we have to have a new one, because the weekday names of the 365 days are differently arranged. You know if Christmas Day comes on Monday one year it will fall on Tuesday the next, so we have to consult our calendar whenever we wish to know the day upon which any holiday will occur, because it changes every year. We are used to this and each year look at the new calendar to find out what day Christmas or Easter or our birthday will fall upon, or when the vacations at school will begin and end, without realizing what a great deal of work must be done in fitting these dates into calendar tables for the year, or how much they affect life and welfare.

Do you ever think of the amount of work it takes for the heads of our schools to arrange the school year? Holidays and vacations as well as periods of study must be carefully measured and fitted into a number of weeks in order that a certain amount of work may be accomplished and all the school activities regulated. It is very important to know on what day of the week certain dates will fall, and, as these are different every year, all the work has to be done and a new schedule arranged each fall before school starts. How much easier it would be if there were one calendar or Yardstick that could fit the *whole world* and do it *year after year* in the *same way*. Then if school were to start the day following Labor Day, it would always have the same date and not come sometimes on the second of September and sometimes on the eighth, while schedules for one year would do every year. We would learn the almanac at school, like the multiplication table. There have been many plans for a new Yardstick, but the trouble has been that while they might fit some of the people some of the time, they did not fit all the people all the time.

Within the past few years, however, two plans have been suggested which seem most nearly what the world needs. These are both perpetual, meaning that they provide for a Yardstick which will measure time the same way every year through future ages. Sunday, January first, will always be Sunday, January first, and New Year's Day will no longer slip through the days of the week as it does now. In the same way, you can always count on your birthday coming a certain day of the week and need

not run to the calendar to find out what day this or that holiday falls upon. We shall now discover, if we can, which of these two plans has the better chance of meeting the approval of our world with its millions of people belonging to different countries and races, but so strangely united.

One of these two plans, called The International Fixed Calendar, proposes a Yardstick divided into thirteen parts; that is, the year would have thirteen instead of twelve months, and each month would have an equal number of weeks and days—four weeks of seven days, making twenty-eight days to the month. But this, you will quickly calculate, makes only 364 days instead of 365, to say nothing of the 366 days in Leap Year. Well, the extra day is added at the end of the year and is called Year Day, December 29th. In Leap Year, another extra day is inserted after June 28th. Another question which I am sure must have occurred to you is: "How about the thirteenth month? Where does it come, and how is it named?" It would be placed between June and July, and named Sol.

The other plan for a new Yardstick, which has for its name The World Calendar, keeps the twelve-month division of the year. Thus far it agrees with our present calendar, but it has a more orderly arrangement of days than the Roman Emperors made when they fixed the length of the months in such higgledy-piggledy fashion. The twelve-month year is divided into four equal quarters of 91 days, or 13 weeks, and the first month of each quarter has 31 days while the other two have 30 days. These equal quarters correspond with the four seasons, upon which all the Yardsticks of antiquity are based, and seem a more natural division of the year which the sun measures with solstices and equinoxes.

Now, if you have been busy with your arithmetic again, you will have discovered that this plan, like the thirteen-month, totals only 364 days. In both cases the extra day is added at the end of the year, and in Leap Year a day is added at the end of June. With The World Calendar plan, each *quarter* repeats itself instead of each *month,* as in the thirteen-month Yardstick. In both Yardsticks every *year* repeats itself.

So here we have two plans, either of which will give us a more regular Yardstick than the one we now use and which, I am sure you will agree, the world has outgrown. Our choice will depend upon which comes nearer meeting the needs of all races and lands today.

If you would be interested in comparing the two proposed Yardsticks, draw two diagrams and divide one into thirteen parts and the other into twelve. Then make your half and quarter divisions. Fill these in with months, weeks, and days to correspond with the divisions of our Stellar Yardstick or Calendar. You will find, in both cases, that the quarters have 91 days or 13 weeks; but, when it comes to months, the thirteen-month Yardstick will involve you in fractions: 3¼ months to each quarterly division, while the twelve-month Yardstick has three complete months.

VIGNETTES OF HISTORY

By MARGARET BECKER KULP

Executive Secretary of the State Federation of Pennsylvania Women

Study of calendar reform by women's clubs, as a part of their regular cultural or current-events programs, has been recommended by Mrs. Kulp and many other leaders among national clubwomen. In connection with the working out of such a program, Mrs. Kulp has published a "study outline," suggesting the lines along which the subject might be most usefully presented. The following article is taken from the introductory pages of her pamphlet.

CALENDAR reform? Why not? Down through the centuries man has sought to improve all phases of life and living, but our calendar, the most humanizing factor in life, the force by which all living is directed and regulated, has not been remodeled for 353 years!

The calendar is older than civilization itself. And so is calendar reform. Back in the beginning of things, when man was in the childhood of the race, he observed that floods and harvests marched by with a certain rhythmic precision, and he fashioned the first crude calendar by making simple drawings on the walls of his cave to measure the passage of time. Then he became aware that the moon waxed and waned with regularity, that the intervals from moon to moon provided longer periods by which he could count on his fingers the time between the floods and harvests. He came to realize that the spring and fall were just so many moons apart, and he set to work to revise his first crude calendar by creating calendars of stone and wood upon which he carved a record of the moon-months which marked the transition of the seasons.

This "science," gleaned before recorded time, was the humanizing force that led primitive man out of darkness into the dawn of civilization. The need for calendar knowledge compelled him to study the heavens and thus astronomy was born. Strange to relate, astronomy sprang up simultaneously and separately in many parts of the world. The relationship between the moon, the stars, the sun, and the seasons was discovered independently by Babylonians, Egyptians, and other ancient races in Europe, Africa, and Asia. The month (moonth), owes its origin to the period of the phases of the moon. Persians, Arabs, and all Mohammedan races figured time by a calendar whose months were practically equal to the moon's periodic changes. Such was the calendar of the ancient Greeks. Our own American Indian ingeniously named the months corresponding to our own calendar months: Cold Moon, Hunger Moon, Crow Moon, Grass Moon, Planting Moon, Rose Moon, Thunder Moon, Green Corn Moon, Harvest Moon, Hunting Moon, Frosty Moon, and Long Night Moon.

Always did primitive man instinctively divide the year into four sea-

sons, and each season into three moon-periods, as do the unlettered savages of today. But as time went on it was found that the astronomical year does not contain an exact number of lunar months and that it is very difficult to build up a lunar calendar which has any accord or harmony with the sun. The Mohammedan calendar, for instance, composed of precisely 12 lunar months, is much shorter than the solar calendar, and the seasons in the Mohammedan reckoning make their way through the whole circle of the year in a comparatively short time. The Jewish religion still follows the lunar calendar, but to avoid the difficulty inherent in the Mohammedan calendar an additional month must be inserted occasionally to bring the calendar in accord with the seasons. The ancient Greeks endeavored to meet this difficulty by a combination of long and short years. Their short years, called "defective," contained 12 months; their long years, called "abundant," contained 13 months. The two kinds of years were scattered adroitly through a cycle of 19 years. The calendars of the Japanese and the Chinese are particularly picturesque. The Japanese, it is said, "have plenty of time." Even today they employ several different ways of reckoning the days and months and years. They have both solar and lunar time; Japanese, Chinese, and Occidental time. They have two national calendars, and several special periods. Of the two purely Japanese calendars, one reckons time from the mythological founding of the Empire in 660 B.C., and is known as KIGEN, or history-beginning; the other is the special period called MEIJI, or Enlightened Rule, which began after the accession of the Emperor Meiji.

Under the old Japanese calendar there were 24 half-monthly periods whose names indicated the weather, and which the farmer carefully followed in planning his labors. Beginning in February, they were named (grouped by quarter-years) : Rise of Spring, Rain Water, Awakening of Insects, Vernal Equinox, Clear and Bright, Cereal Rain; Rise of Summer, Little Filling, Grain in the Ear, Summer Solstice, Little Heat, Great Heat; Rise of Autumn, Limit of Heat, White Dew, Autumn Equinox, Cold Dew, Frost Fall; Rise of Winter, Little Snow, Great Snow, Winter Solstice, Little Cold, Great Cold.

The ancient Chinese year was lunar, but its commencement was regulated by the sun. New year fell on the first new moon after the sun enters Aquarius, which made it come not before January 21st nor after February 19th. Besides the division of the year into lunar months, the year was apportioned into 24 *tsieh,* or "terms," of about fifteen days each, depending on the position of the sun. Their names had reference to the seasons of the year and obvious changes in nature at the time they occur, as Rain Water, Vernal Equinox, Spiked Grain, Little Heat, etc. The zodiac, or "yellow road," was divided into 28 Siu or Kung, "constellations," or "Lunar Mansions," and further divided into twelve Signs or Palaces which were named after the twelve branches or animals representing them. Thus we

have the names—beginning with Aquarius—of the rat, the ox, tiger, hare, dragon, snake, horse, sheep, monkey, cock, dog, and bear. In the Chinese study of astronomy and time reckoning, there is a certain amount of beauty in what may be called the romantic side of this study. Like the Japanese they observe several periods which are called festivals, and woven into these festivals are legends as old as the country itself.

Then came the Roman reformers with progressive tendencies. The Egyptians had been using for more than 4,000 years a calendar of 360 days—12 months of 30 days each, to which were added, by the reformers of that day, an intercalary period of extra yearly days to bring the year even with the Egyptian sun. In the year 46 B.C., during his reign, Julius Caesar, under Egyptian guidance, substituted the solar calendar for Rome's less exact lunar calendar. Caesar's calendar contained 365¼ days, each fourth year was to be a leap year with 366 days. The months had alternately 30 and 31 days; February alone, as the last day of the year, was given 29 days, with a thirtieth day added in leap years.

The Julian calendar endured for about sixteen centuries, the only reform measures being made by his successor, Augustus Caesar. The Emperor Augustus could not bear the thought that the month dedicated to him, August, should have fewer days than the month, July, dedicated to Julius Caesar, so he changed the distribution of the days of the months.

In 325 A.D. at the Council of Nicea, Constantine the Great inaugurated the 7-day week which became general throughout the Roman Empire, supplanting the old division of the month into Ides, Nones, and Kalends.

The next reformer was Pope Gregory XIII. For more than three centuries before his time there had been active agitation for calendar reform. For, by calculations that had been made back in the Middle Ages, it was known that a year does not contain a full 365¼ days. Too many leap years had been intercalated, with the result that in the northern hemisphere the beginning of the year gradually became further removed from the shortest day. In 1582 Pope Gregory undertook to revise the calendar to its present form. His reform, known as the Gregorian Calendar, was a great contribution to world progress. It is not perfect, nor free from errors or inconveniences, in fact it has many grave defects which should be remedied, but it has given fairly good service for 350 years. It is more than a mere man-made measuring rod. It has traditions of deep meaning and great significance in the history and religions of the races, for priests were its founders and guardians as well as astronomers, mathematicians, and scientists.

Again, in these times of progress, there is active agitation for calendar revision. Reform is recognized and admitted everywhere, but any innovations or departures from the Gregorian Calendar—which is astronomically sound in its monthly and quarterly divisions of the solar year—should not be unnecessarily drastic or severe. True, the calendar has marked irregu-

larities in the discrepancy between the lengths of the quarter years, in the divergence between the lengths of the months, in the lack of consonance between the incidence of weekdays and days of the month, and in the tiresome wandering about of the Easter date over a period of 35 days, but these shortcomings should be remedied by intelligent revision rather than by a complete upheaval of the whole calendar system.

No innovation should be adopted which will introduce greater defects than those which we seek to remedy. Any new calendar should carefully retain the adequate and desirable features of the present one. Any changes that are made in calendar revision should be such as to cause the least possible upheaval and disturbance in the transitional stage. For calendar reform is an international, not a national matter, and therefore no changes can possibly be considered that are not generally acceptable to all nations and all peoples. Calendar reform affects very deeply the inbred habits and traditions of every man, woman and child in every nation of the world. And yet, it is a great stride forward in international understanding to strive to unify the calendars of the world.

Of such importance to the nations is the matter of calendar revision that the International Conference of the League of Nations has had it under consideration, and will discuss it again at Geneva in 1936. Any agreement made by the League will no doubt take the form of a treaty, which will require separate ratification by many governments before becoming law. If an accord is reached at the Conference the new calendar would not become operative until January 1, 1939, as it is advisable to inaugurate a new calendar when the first day of the year falls on Sunday.

More than 500 plans have been submitted to the League of Nations, a pertinent indication of the growing sentiment for calendar revision. There has been opposition, too. Every kind of correction which could be imagined has been offered, until the mere examination of plans has become a wearisome task. All proposals comprising improvements of too impractical a character to constitute reform have been finally eliminated and two main groups have been retained from which final selection will be made.

These two main proposals are based on the fact that it is impossible to establish a calendar containing months and quarters of equal length from a year of 365 days and in that way eliminate the essential difficulties and lacunae inherent in the present calendar. Accordingly these plans propose adopting as basis a year of 364 days, while the 365th day would be considered as a special "Year-End Day." In leap years there would be two special days, which, it is proposed, should be public holidays.

Until The World Calendar, a revised twelve-month year, was presented to the American public, only one proposal had been seriously offered for consideration. This was the thirteen-month plan.

CHAMBER OF COMMERCE ACTS

Report by Calendar Reform Committee of the Chamber of Commerce of the State of New York

ADOPTED APRIL 4, 1935

Resolved, That the Chamber of Commerce of the State of New York hereby records its opinion that the present Gregorian calendar is exceedingly unsatisfactory in its bearing, not only upon the conduct of commercial and financial relations, but also upon all activities of the individual, whether they pertain to leisure or work; and, be it

Resolved, That the Chamber advocates a world-wide reform of the calendar to correct the irregularities, and the illogical and inconsistent phases of the system; and, be it

Resolved, That the Chamber believes that of the two leading proposals for calendar reform, the one advocated by The World Calendar Association to establish a Twelve-Month Perpetual Calendar is the more desirable; and be it further

Resolved, That the Chamber urges upon the Government Authorities that they use their good offices to bring about consideration by the League of Nations in 1936 of the subject of calendar reform.

IT SEEMS conclusively established that calendar reform is a matter of sufficient importance to warrant the great effort and the extensive campaign of education necessary to win for it general and world-wide acceptance.

The League of Nations has had calendar reform under consideration for several years. In 1927 the League suggested that national committees on calendar reform be organized in different countries. Many such committees are now working for reform. At the same time, resolutions urging a general conference on calendar reform have been addressed to the League of Nations by many international and national groups, among them the International Chamber of Commerce, the World Federation of Educational Associations, the American Bankers Association, the American Bar Association and the National Academy of Science.

In the United States an organization, known as the National Committee on Calendar Simplification, has given the matter serious study, and in 1929, after a year's investigation, made a report which was submitted to the League of Nations. This report set forth that it had been found that more than eighty per cent of representative national, state and local organizations, extending over large fields of activities in this country, were in favor of calendar reform; and that the participation of the United States in a world conference to consider the matter was also advocated.

As the situation stands today, there are only two important proposals for calendar reform. These are the so-called International Fixed Calendar

EDITOR'S NOTE.—The official publication of this report is accompanied by the following notice: "This report was mailed to all members of the Chamber five days before the meeting and copies were also placed in the hands of each member attending the meeting, when opportunity was given for discussion. The vote thereon, therefore, can fairly be said to represent the opinion of the entire membership. The meetings of the Chamber are attended by three or four hundred members. Both resolutions and report were unanimously adopted."

of thirteen months and the so-called World Calendar of twelve months, or Twelve-Month Perpetual Calendar. Both these plans have many advocates.

The thirteen-month calendar is, like the present calendar, based on a year of 365 days with a quadrennial Leap Year; but the year is divided into thirteen months of four weeks or twenty-eight days each. A new month, Sol, is to be inserted between June and July, and following the month of December there will be a "Year Day," the 365th of the year. In Leap Year an extra day will be placed between June 28 and the beginning of the new month. It is a perpetual calendar. That is to say, there is no change from year to year, and each week begins on Sunday.

The twelve-month calendar, known as the Twelve-Month Perpetual Calendar, involves a far less radical change. The months, while not of even length, are so arranged that each half year and each quarter year will contain the same number of days. This is accomplished by giving to the first month thirty-one days, and the two following months thirty days. This scheme is repeated four times. In this arrangement the first month of each quarter begins on a Sunday, the second month of each quarter on Wednesday, and the third month of each quarter on Friday. This calendar, like the other, provides for a Year-End Day and a Leap-Year Day to be holidays, and not to count as a weekday.

A vast amount of evidence, some favoring a twelve-month and some a thirteen-month calendar, has been examined by your Sub-Committee. It is convinced that the predominance of evidence is in favor of the twelve-month year, and that the majority of the people of the world hold a similar view. The conclusion is general that the business world will receive far more benefits from universal adoption of the so-called World Calendar of twelve months.

In the first place, the maintenance of twelve months in the year will be accepted with less opposition by the many millions of unthinking individuals to whom calendar changes are of no particular personal advantage but to whom the continuity with the past means much. Also, the division of the year into four equal quarters of ninety-one days each will provide many of the advantages of the thirteen-month calendar for accounting purposes. Similar months and weeks of different years can be compared as accurately as under the thirteen-month system, which is of far more importance. At the same time, no difficulty would exist in comparing periods with our present Gregorian calendar. Obviously, in the twelve-month calendar, months and weeks of the year cannot be compared one with another as easily as can those of the thirteen-month calendar.

Many businesses have adopted the thirteen-month-period year for cost accounting, manufacturing and merchandising comparisons; but on any quarterly basis of accounting, in which the general public is more often interested, a twelve-month year is superior. Under a thirteen-month

calendar the number of monthly transactions per annum are increased with a consequent increase in operating costs, and some difficulty is presented in transactions involving rents, wages, salaries, interest charges, etc. The World Calendar system, by avoiding the inconvenient fraction thirteen, would enable a change to the new system to be made smoothly and with little effect on the mental attitude of the average citizen.

Only two religious groups, comparatively small in number, oppose any change from the present Gregorian calendar. So far as holidays are concerned, each religious faith takes the stand that these are not a matter of calendar reform, but rather one of special enactment by their particular religious organizations. Numerous different calendars are observed throughout the world by religious faiths, although in most countries business and civil activities are carried on under the Gregorian calendar.

It is expected that a twelve-month calendar will enlist greater political support than a thirteen-month plan. This conclusion is based on the well-known fact that political leaders in general will not advocate any reform which will disturb a considerable percentage of their constituents, particularly when there is available an alternative plan far less disturbing. This is an important point in favor of the twelve-month plan, because calendar reform can only be accomplished through political agencies, and through joint political action by all nations.

Information has reached your Committee that the League of Nations is prepared to place the question of Calendar Reform on its agenda for 1936, provided at least two important nations request such action. The year 1936 is regarded as a very good year in which to begin a broad consideration of this subject because any international plan would require several years to secure general adoption. Attention has been called to the fact that the next year in which the present calendar year begins on Sunday is 1939, and that the next succeeding year which begins on Sunday is 1950. Both plans of Calendar Reform suggest Sunday as the first day of the year, so that if Calendar Reform is to be accomplished it must be put into effect in 1939, or not until 1950, hence the importance of placing it on the League of Nations agenda for 1936.

Respectfully submitted,

HOWARD C. SMITH, *Chairman*
Member Executive Committee, Chamber of Commerce of the State of New York

J. STEWART BAKER
President, Bank of the Manhattan Company

WALDRON P. BELKNAP
Vice-President, Bankers Trust Co.

FREDERICK H. HURDMAN
Hurdman and Cranstoun, Chartered Public Accountants

WILLIAM R. K. TAYLOR
W. R. K. Taylor & Co., Investment Bankers

OPINION OF ACTUARIES

Report of a Questionnaire Issued by the United Press

IT HAS been said that insurance actuaries are the most conservative of all professional men in the matter of proposals for calendar reform. This viewpoint is expressed in the report of a committee of the American Statistical Association, which says: "In some fields of interest there is a negative attitude to a change in the calendar: this is true of such fields as insurance."

To test this "negative" attitude, the United Press sent a questionnaire to all members of the three important actuarial organizations—the Actuarial Society of America, the Casualty Actuarial Society and the American Institute of Actuaries. A total of 163 replies was received. The answers to the questions submitted were as follows:

1. *Should the present calendar be changed?* Yes, 118; No, 37; Indefinite, 8. Percentage favoring calendar reform, 76.1.

2. *Do you favor legislative action for reform within 5 years?* Yes, 99; No. 34. No answer or indefinite, 30. Percentage favoring action, 74.4.

3. *Which of the two major plans for a new calendar do you prefer?* 12-month plan, 126; 13-month plan, 16. Indefinite, 21. Percentage favoring 12-month, 88.7.

4. *What action should the United States take?* Legislation, "active steps" or adoption, 57; international conference or cooperation, 25; no immediate action, 33; non-committal or no answer, 48.

It may be gathered from these replies that insurance actuaries favor calendar reform by a vote of about 3 to 1. They prefer the 12-month plan of revision by nearly 8 to 1.

Some of the comments made by actuaries answering the questionnaire are appended herewith.

T. W. GERBER
United Press Associations,
New York City.

Alabama. "Of the two major plans, I favor the 12-month equal-quarter," says Alex C. Wellman of the Protective Life Insurance Co.

California. "The United States should take the initiative in definite legislative action," writes Carl E. Herfurth of Los Angeles. "I have not gone into the question exhaustively, but favor reform on the 12-month basis," states Marcus Gunn of the California-Western States Life. "Operation of a statistical department would be considerably aided and the resulting statistics made more uniform by adoption of the 12-month equal-quarter plan; the U. S. government should try to work out an international agreement through the Postal Union or some similar convention," suggests W. S. Hollies of the Occidental Life. "The United States should take positive action for adoption of the 12-month equal-quarter calendar," declares C. H. Tookey of the Occidental Life. "The 12-month plan is the most practical; Congress should go on record as ready to cooperate with other nations for its adoption; the United States might well take the initiative by calling an international conference," comments Walter

F. Sullivan of the Associated Indemnity. "The 12-month plan is better, because of its adaptability to comparative statistics of business during quarter and half years," says John J. Taheny of Associated Indemnity. "The government should appoint a first-rank committee to canvass the matter," writes A. H. Mowbray of the University of California. "I would favor any legislative method which would be orderly and would make universal the change to the equal-quarter calendar," suggests Harold H. Buckman of the California-Western States Life. "I wonder if a constitutional amendment would be necessary," asks J. P. Bowerman of Los Angeles.

Connecticut. "I am mildly in favor of the 12-month equal-quarter plan," writes Ward Van B. Hart of the Connecticut General. "The United States should take the lead," declares Richard H. Getman of the Travelers, and his opinion is echoed by W. A. Poissant of the same company. "Congress should pass an act to become effective when similar action is taken by the League of Nations," suggests Fred S. Garrison of Travelers Indemnity. "The United States should cooperate with other governments looking toward change," says W. R. Williamson of Travelers. "There should be definite legislative action," writes John B. Lienhard of the Connecticut General, as does W. N. Bagley of Travelers. "The government should take all the action possible," states F. T. Perkins of Aetna. "The World Court might be consulted; certainly there should be definite legislative action toward this reform," declares Alden T. Bunyan of Phoenix Mutual. "I favor the 12-month equal-quarter plan," urges A. N. Matthews of Travelers. "The U. S. should cooperate with other major nations to obtain uniform action," says J. R. Larus of the Phoenix Mutual.

Delaware. "The 12-month equal-quarter plan is the only one to be considered; I think the United States might invite delegates from other nations to a discussion of the matter," suggests G. H. Amerman of Continental-American Life.

District of Columbia. "The United States should take legislative action, contingent on approval by other countries," says L. K. Crippen of Acacia Mutual.

Illinois. "The change to the equal-quarter plan would be advantageous if adopted universally," writes Bruce Batho of the Franklin Life. "I think the calendar should be changed, but I don't believe such a change is pressing at this time," states O. E. Outwater of the Association of Railway Employees. "Our government should propose international action; the arguments for the revised 12-month calendar seem to me conclusive," declares H. R. Corbett of Chicago.

Indiana. "It would be desirable to have definite legislative action for adoption of the equal-quarter plan," suggests W. A. Jenkins of Lincoln National. "The 12-month plan for a new calendar is much better from all angles," comments R. B. Sturtevant of American Central Life. "The simplest modification should prevail; I was very much interested in reading the arguments for The World Calendar," says A. B. Ambler, Jr., of Lincoln National. "I favor the 12-month plan for a new calendar," writes B. G. Stagg of Fort Wayne. "The 12-month plan is better than the present calendar and should be adopted," declares E. L. Marshall of Lafayette.

Iowa. "I emphatically favor the equal-quarter plan; a campaign of education and study should be carried on; the government might well appoint a committee of experts," suggests H. L. Rietz of Iowa City. "I favor legislative action," declares W. D. MacKinnon of Des Moines, as does R. G. Hunter of Iowa Equitable.

Maine. "The equal-quarter plan is the best; if adopted, some people will remember all the days of the year in the same way that they remember how to tell time on the face of a watch," writes J. L. Roberts of Brunswick.

Maryland. "If either plan is adopted, I would prefer the equal-quarter proposal," decides R. W. Gallon of New Amsterdam Casualty.

Massachusetts. "The United States should take whatever action is necessary for world-wide uniformity in adopting the equal-quarter calendar," urges W. J. Constable of the Lumberman's Mutual. "Once the United States makes the change, other nations will follow suit," suggests A. C. Patton of Worcester. "The government should support this proposal by legislation," declares A. T. Maclean of the Massachusetts Mutual. "Our government should take the lead, if necessary, in calling an international conference," says E. S. Cogswell of the State Insurance Department. "The United States

should cooperate with other nations to make the change universal," writes A. C. Washburne of the Berkshire Life. "I prefer the 12-month plan for revising the calendar," states L. H. Howe of the John Hancock Mutual. "Our government should take any necessary action leading toward international adoption," declares H. A. Grout of Boston. "I think the United States should take steps to accomplish this reform," urges E. T. Berkeley of the Employers Group. "I favor the equal-quarter plan," says Eleanor A. Abbott of John Hancock. "I think the United States should take any necessary action," writes H. A. Garabedian of Boston. "There must be concurrent international action in this matter," advises Elizabeth W. Wilson of Cambridge. "The U. S. should take legislative action contingent upon acceptance by other powers," says C. E. Hodges, Jr., of the American Policyholders.

Michigan. "Our present calendar should be changed, as soon as practically possible," urges Prof. James W. Glover of the University of Michigan. "World agreement would be preferable to independent action by the U. S.," suggests C. H. Burhans of Standard Accident. "We should seek to effect calendar reform by active cooperation with other nations," declares Kendrick Stoke of Michigan Liability. "The present calendar has served us well, but it can be improved and should be changed; I very definitely prefer the 12-month plan of revision; the United States government should take the initiative," writes J. E. Little of the Maccabees.

Minnesota. "Our government should take action to make the equal-quarter plan effective as soon as it is approved by the League of Nations," says H. W. Allstrom of the Minnesota Mutual. "Why defer this needed change to an equal-quarter calendar any longer?" asks E. H. Dearth of Saint Paul.

Missouri. "The United States should initiate definite action in some form," writes F. S. Withington of Kansas City. "Our government should cooperate with all international groups which are studying the matter," states C. E. Nelson of the State Insurance Department. "I favor the equal-quarter plan and think there should be definite legislative action," declares F. D. Strudell of Northwestern National. "The calendar should be changed," urges A. C. Good of Jefferson City.

Montana. "Our government should sponsor an international conference for this proposal," says F. E. Young of Helena.

Nebraska. "The 12-month revision is better than the 13-month plan, but in my opinion no change is necessary," writes J. C. Seitz of Omaha. "I believe the calendar should be changed," states E. C. Ames of Lincoln.

New Jersey. "The U. S. should take the lead in proposing this reform," suggests Conrad Orloff of the Prudential. "Our government should be represented at any international conference discussing this question," says J. S. Thompson of the Mutual Benefit Life. "The World Calendar is the best proposal for revising the calendar," writes John A. McKellar of Bergenfield. "Let's legalize calendar reform and urge other nations to follow suit," urges A. W. Tucker of Princeton. "The 12-month revision is better than the 13-month proposal," declares J. F. Little of the Prudential. "I favor definite legislative action," insists J. R. Herman of Ridgewood. "The 12-month equal-quarter is the best plan," says W. J. Drobnyik of Newark.

New York. "Absolutely yes, as to calendar reform; the present division of the year is archaic and a makeshift; the United States should lead the movement," writes E. C. DeKay of the Industrial Service Corporation. "The government should take steps toward adoption of the 12-month equal-quarter plan," states Lucile M. Albright of the Security Mutual. "There would be less opposition to the 12-month plan of revision than to the 13-month proposal; it is less radical and preserves the quarterly division of the year," comments Marian R. Albright of the Security Mutual. "I believe the United States should take definite action toward changing the calendar," urges Henry Farrer of the Insurance Company of North America. "For insurance I think the 12-month plan is better," says H. N. Sheppard of the Home Life.

"The government should cooperate in obtaining international action," says F. S. Perryman of Royal Indemnity. "There should be definite legislative action," writes H. J. Stark of the Metropolitan, as does also G. D. Moore of Standard Surety. "The insurance business, while favoring calendar reform, would be much opposed to a 13-

month calendar, owing to rate structures, existing contracts, etc.," comments Joseph Linder of Wolfe. "Congress should empower the President to act in this matter," urges W. G. Bowerman of the New York Life. "Our government should pass the necessary legislation and conduct negotiations with foreign nations to secure uniform action," suggests H. L. Feay of the State Insurance Department.

"There should be an international conference to further this reform," advises C. G. Smith of the State Insurance Fund. "There should be an informed exchange of opinions with other nations," suggests M. R. Hollenberg of the State Insurance Department. "The United States should participate in any international action to promote this plan," declares F. A. Weck of the Metropolitan Life. "The government might appoint a commission to draft a new calendar," says Robert Riegel of Buffalo.

"The government should favor the revised 12-month calendar," writes S. L. Otis of the Otis Service. "We should do whatever is necessary to put this reform into effect," states W. H. Bittel, insurance attorney. "The government should actively interest itself," suggests W. W. Mincks of the Equitable. "I favor the 12-month equal-quarter plan, if any," says W. J. November of the Equitable. "I favor not merely the equal-quarter revision of the calendar, but also a readjustment of holidays to fall always on week-ends, as the present breaking up of the week by holidays is extremely inefficient," declares W. F. Roeber of the National Council on Compensation Insurance.

"The government should take definite action on the 12-month equal-quarter plan, which is an excellent and stable idea," writes E. A. Cook of the Interboro Mutual. "It is the nearest practicable compromise between ideal and reality," states Kingsland Camp of the Equitable. "Congress should authorize the President to appoint a Commission with authority to act," suggests M. F. Lipton of the Equitable. "Some change in the calendar might be made with advantage," concedes J. B. St. John of the Metropolitan. "I favor the equal-quarter revision," declares L. S. Wagenseller of the Metropolitan. "The calendar should be changed," says Harry Walker of the Equitable. "If any change is made, I prefer the 12-month plan," writes D. S. Craig of the Metropolitan. "I favor legislative action for the 12-month plan," insists D. A. Walker of the Equitable, as does David Silverman of Brooklyn. "The government should cooperate with all other countries in this matter," urges L. J. Brazdionis of Brooklyn. "Calendar reform is desirable if the possibility of an undesirable change can be eliminated," says R. Henderson of the Equitable.

Ohio. "Our government should endorse The World Calendar and encourage concerted action by other nations," writes C. H. Folz of the Western-and-Southern. "I see nothing to be gained by postponing this reform any longer; the League of Nations is obviously the body through which unified international action should proceed," states E. E. Hardcastle of the Union Central. "I have favored action along these lines for many years; I prefer the 12-month," says F. A. Draper of Westerville.

Oregon. "More education of the public is required before legislative action is taken; the 13-month plan is too radical; the U. S. should cooperate with the League of Nations in a worldwide program," writes G. E. Cannon of the Oregon Mutual.

Pennsylvania. "The 13-month idea is utterly inacceptable," declares J. L. Milne of the Presbyterian Ministers Fund. "I favor the 12-month equal-quarter proposal," comments M. L. Johnson of the Penn Mutual. "Adoption of the 13-month plan would be most unfortunate," states M. A. Linton of Philadelphia. "I favor legislative action looking toward the equal-quarter plan," says E. W. Marshall of Provident Mutual.

South Carolina. "I favor the equal-quarter plan but haven't considered what action our government ought to take," writes J. M. Woolery of the Southeastern Life.

Tennessee. "If the United States and Great Britain could reach an agreement, a reform of this kind might be instituted; I certainly am in favor of changing to the equal-quarter perpetual calendar," states K. B. Piper of Provident Life and Accident. "Our government should act on this matter, in concert with other major powers," suggests W. H. McBride of the National Life and Accident.

Texas. "The 13-month plan would be specially difficult," says L. K. Friedman of the Great Southern.

Virginia. "I prefer the equal-quarter plan," states C. A. Taylor of the Virginia

Life, and his opinion is endorsed by C. A. McConaghy of the Shenandoah Insurance Co.

Wisconsin. "Legislative action for the equal-quarter plan should be taken so that the new calendar can go into effect in 1939; the difficulty with a 13-month year is that 13 is a prime number and does not lend itself to division; international cooperation might be obtained quickly if the U. S. government were to adopt The World Calendar," argues V. E. Henningsen of the Northwestern Mutual. "The U. S. should cooperate in any organized international movement toward calendar reform," says Elizabeth J. Steele of Madison. "The 12-month plan is best," says C. E. Brooks of Madison, as does also C. N. Jacobs of the Hardware Mutual. "If any change is made, I would prefer the equal-quarter," writes A. C. Eastlack of Wisconsin National.

Washington. "I'm not certain about calendar reform, but prefer the equal-quarter plan," states R. C. Burton of the New World Life.

STATISTICIANS AGAIN FAVOR WORLD CALENDAR

AT the annual meeting of the American Statistical Association in Chicago, December 26-29, 1934, its calendar reform committee made a detailed report on the result of questionnaires submitted to the membership. Two questionnaires were sent out, the first a general one, the second a more detailed inquiry submitted only to those members who had expressed a special interest in the subject.

The results of both questionnaires are presented fully in the Journal of the Association. The committee's summary is as follows:

1. Judging by the fact that the first questionnaire was answered by 21 per cent of the Association's membership, only a minority of the members of the Association are sufficiently interested in or aware of the problems offered by the present calendar. But among this minority are most of the prominent members of the profession.

2. Of the minority of the membership who were sufficiently interested in calendar reform to answer the first questionnaire, the overwhelming majority was favorably inclined to calendar reform and was willing to urge a reform of the calendar within the near future.

3. In some fields of interest there was, however, a negative attitude to a change in calendar. This was true of such fields as insurance, and was shown by those members of the Association who are interested primarily in the theory of statistics.

4. Judging by the second questionnaire, only about 10 per cent of the Association's membership are sufficiently conversant with, and interested in, the calendar problem to pass detailed judgment upon its various aspects. However, the replies of this small minority throw considerable light upon various questions connected with the change of the calendar.

5. From the viewpoints of the field of special interest and/or of statistical practice as a whole, the gravest disadvantages of the present calendar are the unequal number of days in the months and the fact that in successive years one and the same month has a varying number of different days of the week. Accordingly, from the same viewpoints, the gravest disadvantage of any change in the calendar is the changing length of the months from the old to the new calendar. But from the viewpoint of society as a whole, the most important defect of the present calendar is the shift in holidays from year to year, and other shifts of dates; while the greatest disadvantage of a change in the calendar is the disappearance in the new calendar of certain dates existing in the old calendar.

6. The replies in the second questionnaire are overwhelmingly in favor of a reform of the present calendar. As between the two leading plans of reform, the 12 months equal-quarter plan, and the 13 equal months plan, the former is slightly favored over the latter in replies given from the viewpoints of special field of interest and/or statistical practice as a whole. From the viewpoint of society as a whole, there is a marked preponderance in favor of the 12 months equal-quarter plan, 92 out of 147 replies giving a definite choice favoring this plan.

ROMANCE OF THE CALENDAR

By P. W. Wilson

CHAPTER I: A SYMPOSIUM ON TIME

WE are to tell the story of a convenience to the individual and society. It is a convenience so familiar that, as a rule, it is taken for granted. The story of the calendar is a long story. The opening chapter has to be read in the dim light of the dawn of time. Yet the story is as modern as it is ancient. The calendar is the one activity in civilization that can never be out of date.

The story leads us into remote periods and strange places—as remote as Iceland, Korea and Tibet. We see man in his most primitive dwellings. We visit tombs and temples, churches, colleges and the courts of kings. Yet we do not forget the bank, the factory, the railway and the steamship. The story is crowded with curious incident and human drama. It includes entertaining arithmetic—none of it beyond the comprehension of a person who knows the elements of arithmetic—nor has anyone interested himself in the calendar and afterwards lost that interest. Like the language of the rocks and of the flowers and of the birds, the language of time, once heard, can never again be foreign. It becomes a personal companionship.

Owing to exceptional circumstances, men have been cut off suddenly, and as it seemed finally, from their fellowmen. They were condemned to solitude. Is it not significant that these exiles in their loneliness desired, above all things, to maintain some kind of device for counting their days?

When Robinson Crusoe landed on his desert island what was his first haunting fear? It was that he would lose his "reckoning of time for want of books and pen and ink and should even forget the Sabbath days." He lost not a moment before setting up a post and cutting a notch upon it each day as it dawned and he writes: "Every seventh notch was as long again as the rest, and every first day of the month, as long again as that long one; and thus I kept my calendar, or weekly, monthly, and yearly reckoning."

The original of Robinson Crusoe was Alexander Selkirk; it was to his memory that Cowper inscribed the poem which begins: "I am monarch of all I survey," and there we read of the "valleys and rocks" which never heard "the sound of the church-going bell." The monarch of all he surveyed needed a calendar that would acquaint him with the Sabbath.

Dumas tells of Edmund Dantes—otherwise Count of Monte Cristo, who was incarcerated in the fortress of Chateau d'If—how he managed by means of a tunnel to visit the Abbe Faria, who had been for years in solitary confinement. The Abbe astonished Monte Cristo with the informa-

tion that it was just 12:15 o'clock, and how did he know it? He had inscribed ellipses on one of the walls and watched the shadow cast by his window as it moved across the masonry. Here was a lonely man whose instinct it was to measure time.

As with man in solitude, so with man in society. Not for an instant has he ceased through thousands of years—as Shakespeare reminds us—whatever the wars, whatever the revolutions—to

> See the minutes how they run,
> How many make the hour full complete;
> How many hours bring about the day;
> How many days will finish up the year;
> How many years a mortal man may live.

It is said that good writers use short words. The sound of single syllables—thought, force, life—is familiar to our ears, and we take it for granted that we know what they mean. These are the words that—as we put it—any child can understand.

When we try to define the words we realize something of their content. "What is truth?" asked Pilate, and after nineteen hundred years of speculation by the greatest intellects of our race, who has answered that ironical question? The profoundest philosophers—Kant and his successors—brood over the problem and cannot say for certain how much of reality, if anything, is really real.

In considering the calendar, the question that confronts us at the outset—not that we shall attempt to answer it—must be: "What is time?" And of the "great mystery," as Carlyle calls it, there are many definitions. In one dictionary, time is stated to be "the general idea, relation or fact of continuous or successive existence." Another formula is "the experience of duration." A third is "that dimension of the world which we express in terms of before and after."

These definitions of time consist of words about a word, and examined carefully, they only multiply our uncertainties. What do we mean by "continuous or successive existence?" What is "experience" and what is "duration" and what is "dimension" and what are "before and after?"

We say that the tick of a watch tells the time. But is time really so simple as that little snapshot of "duration?" There are vagaries associated with time that have become familiar to us all, and one of them is what we call speed. We watch an express train as—with its whistle—it whizzes through a station. The note of the whistle as the train approaches is sharp and shrill. But as the train recedes, the note falls flat. The speed of the train, as it passes by, adds to and detracts from the vibrations of sound that, in a given time, reach the ear.

During the war, millions of people experienced a somewhat similar impression. A projectile was hurled through the air at a speed that out-

stripped the passage of sound—that is, 1090 feet per second. The noise of the shell thus reached the ear, as it were, backwards. First, there was the explosion of the shell near at hand. Next, the ear was conscious of the shriek of the shell along its course. Thirdly, there was audible in the distance the boom of the gun that fired the shell.

Vision is determined by rays of light that reach the eye, and light, like sound, requires time—a second per 186,772 miles—to pass from one point to another. There are stars which are so distant from our Earth that their inhabitants, if they were inhabited and had the required telescope would be today watching the Battle of Yorktown or Waterloo. The origin of the twinkle from those stars that we on our side observe at this moment is more than 100 years old nor are we at any instant seeing those stars in the place where they really are. During the transit of the light that reaches us, the stars have moved on. Many stars are literally thousands of "light years" distant from the Earth.

It is with incredible velocity that stars which we call "fixed" sweep along orbits of illimitable range. A spectator on such a star would thus see our history only as the rays from our earth reached him. Moving toward the earth, he would notice an acceleration of events; moving away from the earth, there would be a retardation of events; and if the motion away from the earth were so rapid as to exceed the speed of light, the rays from our earth would be, as it were, outstripped by the hurry of the star and would not reach the spectator. The earth would be simply invisible.

Time is thus a thought in the mind of man, and a very elusive thought. Over that thought, at the moment, the supermen of science, Einstein and Bergson, protagonists in the field of relativity, with their disciples, meditate and argue—A French scientist, Charles Nordmann, has written a whole book on their controversy, entitled "The Tyranny of Time—Einstein or Bergson"—and there are not many of us qualified to share their mathematical solitudes. But the discussion is evidence that what seems to be so simple that it can be told by the tick of a watch, is really a subtlety as bewildering to the reason as it is fascinating to the imagination.

What Einstein elucidates—if elucidation is the right word—is the relativity of time to the motion of material bodies. The problem that the average man has had to solve is the much more complex relativity of time to the emotions of his own being. Feelings and circumstances affect powers of reckoning, and when man tries to be a clock, he keeps very poor time. The beat of his heart is always fast or slow. Any lawyer will confirm the statement that evidence of witnesses as to whether they waited for five or ten or fifteen minutes, even if it be given in good faith, is unreliable. What is five minutes to one person is ten minutes to another.

"How slowly the hours pass to the unhappy," wrote the French writer, Saurin, and of an eager suitor, Shakespeare tells us, "time goes on

crutches till love have its rites." We may be anxiously expecting news. The clock seems to stop. "What minutes!" wrote Disraeli of such a crisis. "Count them by sensation, and not by calendars; each moment is a day."

Yet time seems also to fly apace. "Pleasure and action make the hours seem short," says Shakespeare, and in retrospect even a laggard time seems to have been rushing breathlessly ahead. "A thousand years," says the Psalmist, "are but as yesterday when it is passed."

To the humblest and the proudest of creatures alike, the passage of time makes a difference. In the words of Ovid, time is "the best medicine." It heals the wound. Yet none the less is it a fact that—once more to quote Shakespeare—"the whirligig of time brings in his revenges." Some, in their eagerness, "seize time by the forelock," an idea to which ancient writers were very partial. Carpe Diem—catch the day—cried Horace. Yet there are others who, in the words of Rabelais, want to know "how a man should kill time." Wordsworth speaks of time as "a galling yoke," and in prison doing time is a punishment.

Man has endeavored to visualize Father Time. Artists have painted his portrait on walls and canvas. Sculptors have carved his countenance on stone. To the Greeks, time was an august personage whose heyday of youth was enjoyed in the dim primeval eras—to quote Chesterton—"before the gods that made the gods had seen their sunrise pass." Time survives as Kronos, an old man, bowed and bearded, whose golden age has receded long ago into the remote shadows. Nor was Kronos always treated with the respect that his age deserved. Athens was a city of the immediate, where—according to Scripture—they "spent their time in nothing else but either to tell or to hear some new thing" and Kronos came to be ridiculed as the Great Has Been—a dotard on days gone by.

Let no one, however, minimize the formidable prerogatives that old Kronos never surrenders. In the heavens above our heads shines the orb of his unending authority. His especial planet is Saturn and Saturn was the Latin *incognito* that Kronos used when, as a deity on tour, he left the Olympus of Homer and paid a state visit to the more youthful city of Rome. From his celestial sphere, wheeling through solar space, Kronos drew the fascinating science that, in its innumerable ramifications, we call chronology. It is a science that is illuminated by sun, moon and stars; and the alphabet of chronology is the calendar.

In prose and poetry, the age-long sovereignty of time over the affairs of men has been surrounded by the regalia of an impressive symbolism. "Time's the King of men," wrote Shakespeare, "he's both their parent and he is their grave." The staff in the gnarled hand of Kronos was not only a support. It was a scythe and ceaselessly that scythe swishes—day and night—over the societies of all living things. In the greatest of his hymns, Isaac Watts tells how "time like an ever rolling stream bears all

her sons away," and Tennyson, in a crude concrete couplet, declares: "Every moment dies a man, every moment one is born."

No wonder that with his own somber eloquence Omar Khayyam could sing the swan song of us mortals: "We are no other than a moving row of magic shadows, shapes that come and go," which is, perhaps, the earliest —if also an inadvertent—allusion to what we know as the silver screen!

As with lives so with events. "Rich with the spoils of time," that is the glory of knowledge. Kronos reaps the harvest of history and gathers the archives of all that man has attempted and achieved into the great garner of destiny. The card catalog of history is the calendar, and if the calendar were to be withdrawn from the muniment room of civilization history would fall apart into a hopeless confusion of unrelated fragments. Thousands of scholars are today endeavoring to fit events and edifices and manuscripts into that place in the calendar which once they occupied.

The employment of time by man determines the failure or success of his pursuit of happiness. "Time wasted," wrote Young, "is existence—(time) used is life," and Sir John Suckling coined a phrase which today is on every lip. He talked of acting in the "nick of time." In peace, in war, this is the strategy that wins. On the one hand delay—here the tag comes from Erasmus—is dangerous. On the other hand, Erasmus advises us, "leave hurry to slaves." Without haste, without rest—that was Goethe's way of making the most of time.

The busiest people, it is said, have always time to spare. They know how to conserve their time. On the other hand—once more we quote Young—"procrastination is the thief of time," and Lord Chesterfield wrote to his son, "I recommend you to take care of the minutes, for the hours will take care of themselves." As Oliver Wendell Holmes, in his whimsical way, once rhymed these preachments:

> Old Time, in whose banks we deposit our notes,
> Is a miser who always wants guineas for groats:
> He keeps all his customers still in arrears
> By lending them minutes and charging them years.

There is one passage in literature which has been, for thousands of years, a philosophy of time. "To every thing there is a season," we read in Ecclesiastes, "and a time to every purpose under the heaven." There is "a time to be born and a time to die—a time to plant and a time to pluck up that which is planted," and so on through all the activities and impulses that are included in life. Time is never inadequate if time be orderly.

As we contemplate time—its never ceasing flow through unnumbered millennia—we are drawn into the fathomless depths of eternity. Time is none other than the shadow of nature herself, and between these inseparables there never fails to be an unmistakable correspondence. Loyal to nature, Time displays an unalterable antipathy to all that implies waste,

futility, negation. Neither Time nor Nature is ever a Nihilist. Neither obliterates something into nothing. Both abhor a vacuum.

Time certainly destroys. At the touch of old Kronos, the crests of the mountains crumble into rocks and the rocks disintegrate into soil. But destruction only begins a process. The soil, as it accumulates, is crushed by its weight. It is welded again into rocks and forms vast precipices whereon the craftsmanship of time can be measured by strata which determine a chronology that may extend over millions of years.

On masonry laid by man, however massive it be, the touch of time leaves, similarly, the fingerprint of decay. The treasures of the proudest empires, gorgeous in color and gleaming with adornment, are mellowed into a venerable old age, and afterwards they moulder slowly but surely into inevitable dust. What are our museums but brief havens where, as we fondly suppose, a few trifles collected as souvenirs in the cave and the jungle, in the attics and cellars of civilization, are withdrawn for a while from the decomposing tyranny of time? And how long do we think that museums and libraries will withstand that pervading atmosphere which envelopes and subdues the universe itself?

Yet, here again, time only destroys in order that time may create. If the good be obliterated, the better is substituted for it—at least, so we hope—and the better yields to the best that is yet to be.

Time has been envisaged as the busiest and most skilful of all artificers. His "factory is a secret place," wrote Dickens—his "work is noiseless"—his "hands are mutes." Time is the patience of God.

Under the winking lens of the slow moving camera, a blossom gradually and graciously unfolds its glories. We are conscious of the awe with which He Who is Lord of Time—the Same Yesterday Today and Forever—told us to consider the lilies of the field how they grow.

It is with such infinite care that, over a period of thousands of years, the calendar has been developed. The measurement of time, its division into suitable periods, the enumeration and identification and adjustment of those periods, has been regarded as a sacred task. The calendar has been formed, only to be reformed.

At suitable intervals, some change is made—the most trifling change is important when it affects the calendar—which improves this exquisitely logical and arithmetically graceful structure of seconds and minutes and hours, of days and months and years. It is to this evolution of the calendar that it is our turn—some would put it, our privilege—to add here and there a perfecting touch. There are anomalies that may be corrected. Let us examine those anomalies, never forgetting the reverence which is due to a structure thus venerable and intimate with the life of the race.

(To Be Continued)

EXCERPTS AND REVIEWS

Simpler and Clearer

By Clair C. Barnes, C.P.A.

California State Department of Finance

(Address Before Sacramento Statistical Association)

ONE of the principal purposes of any inquiry by statisticians is to determine whether a revised calendar will be a reformed calendar or a still further deformed calendar. Of course there is a wide difference of opinion even among thoughtful students of the subject as to what type of change will best serve the world.

Considering the effects of calendar revision on statistical methods, the principal object of changing the calendar is to make time intervals more uniform and comparable. Any plan worth considering will simplify methods of making statistical comparisons based on data pertaining to all time subsequent to the change. Each week and month will be comparable with the same week or month in any other revised-calendar year, because of the introduction of a year-day every year and a leap-day every leap year, which will make each year begin on Sunday.

For a considerable number of years after the proposed reform, statistical data compiled prior to calendar revision will have to be adjusted to make them comparable with data collected under the new plan. In this respect statistical methods will be complicated until old records have been re-arranged on the new basis. But since statistics are so important to our scientific and economic advancement, the labor involved will be well worth while, in its effect of giving greater accuracy and simplicity for all time to come. In fact, all the efforts now made by statisticians to adjust weekly and monthly data regarding production, consumption, prices, health, weather, etc., really constitute calendar revision, although the method used is temporary and confusing. It will be wiser to correct the calendar itself, rather than to continue to depend on involved statistical methods to bring our time data into shape for accurate comparison.

One important effect of calendar revision on the science of statistics will be the development of simpler and clearer ways of presenting comparisons based on time units, because the facts will no longer be obscured by intricate adjustments.

Our Changing World

By H. G. Wells

Member World Calendar Association

Editor's Note.—*Perhaps the most compelling reason for the increasing interest in calendar reform throughout the world is the closer contact, physical and mental, which has been thrust upon mankind and upon nations by the invention of the radio, the airplane and other scientific devices for intercommunication. Mr. Wells, in a recent article in Collier's Weekly, pictures this situation and the many far-flung problems that arise from it.*

THE cardinal fact in human history during the past thirty centuries has been the irregularly accelerated change in the scope, pace and precision of communications. Everything is subordinated to that.

About this cardinal fact all the other broad realities group themselves as a system of fluctuating adjustments. It has determined the expansion and collapse of states and empires, the position and growth of cities, the diastole and systole of population and the character of man's outlook upon the universe. Even climatic change takes a role secondary to this main theme in the human story.

Realization of this cardinal biological truth is gradually replacing the erudite balderdash of the literary historian, with his fantasies of the births and deaths of civilizations. There has been and there is only one human civilization and it has manifestly been spreading and varying and wandering and drawing itself together again into larger, fewer units of law and organization since the beginning.

In the past century the rate of this change of scale has become relatively terrific. Communication has become so swift, so far-reaching, universal and intimate that a community of destiny is dictated inexorably to mankind, either the unity of a common purpose or the unity of a common debacle and biological degeneration.

Mankind has still to achieve any world-

wide mental unity. We are unprepared for this emergency that has been gathering through the centuries, to rush at last so swiftly upon us. The natural partitions are down, the whole world is open to us, but we have great difficulty in realizing that. Power—gigantic power—has come to us. Plenty overwhelms us. We can mount to the zenith or plumb the deepest seas; in a few score hours we can fly to the uttermost parts of the earth. Invention and scientific knowledge have taken our hearts and imaginations by surprise. Our social and political ideas, our morals, our ambitions, our courage have had as yet no corresponding expansion.

The whole present spectacle of mankind, broadly conceived, is the uneasy and mainly unintelligent response to the stresses. It never anticipated the fusions and long-range intimacies that now dismay it.

Few of us as yet apprehend the reality of our situation, and none of us can claim to know with any completeness or lucidity the methods by which our race may be able to adapt itself to the vast and fundamental changes that are going on. Man today is a challenged animal. He has to respond, he has to respond successfully to the challenge. But we still lack the force of mind and will to essay the gigantic clearances and the gigantic new constructions upon which these omnipotent changes in our conditions insist.

On the Threshold

By Erland Echlin

(From a pamphlet published by the Rational Calendar Association of Canada)

FOUR years from now, January 1, 1939, will not improbably see the adoption by the world of a simplified calendar. For the past century the growing agitation on the part of science, commerce and the church for a rational improvement in the division of the year, together with a fixed Easter, has developed until it is now at the threshold of legislation.

In twenty of the world's leading nations, calendar committees and organizations are busy informing their public of the advantages of a moderate reform. In 1923, the League of Nations designated a commission to study and report on the subject. As far back as 1928 Britain's Parliament passed an Act stabilizing Easter, and only an Order in Council is required to bring it into force.

In 1934 opinions from wide cross-sections of several countries showed everywhere that a substantial majority favored simplification of the calendar. Commercial bodies, boards of trade and Chambers of Commerce endorsed it in principle. Three great groups of Christian churches passed resolutions favoring it.

In a world torn by war fears and political dissensions these relatively unsensational events have passed without marked notice. Some feel that "now is not the time" for calendar reform. But far more believe that as an economic stabilizer and a promoter of international agreement, this is the psychological moment for balancing the year and simplifying the calendar.

Latin American Leadership

(From an article in the *Prensa,* Santiago)

UNUSUAL distinction has been conferred upon a Chilean astronomer, Dr. Ismael Gajardo Reyes, who has been appointed a member of the International Advisory Board of The World Calendar Association, to advise the Association on all matters of calendar reform in relation to all Latin American countries. Other members of this commission include Prof. P. Stroobant, famous Belgian astronomer; Dr. Abraham Frowein of Berlin, former president of the International Chamber of Commerce; Dr. Athanase Politis, Greek diplomat and head of many important activities at the League of Nations; Prof. Amedeo Giannini, counsellor of the Italian Foreign Office.

Dr. Gajardo has undertaken to constitute permanent committees on calendar reform in each of the countries of Latin America. These committees will contact with the League of Nations and with all the other national calendar reform committees in Europe and America.

We are informed that the Minister of Foreign Relations, Mr. Miguel Cruchaga Tocornal, has given his valuable official support to the calendar reform proposals worked out by Dr. Gajardo, and has instructed the Chilean delegation at Geneva to assist in the carrying out of these proposals at the League of Nations.

EDITORIAL PARAGRAPHS

Progress in calendar reform is reported. People to whom the present calendar is daily routine may have difficulty in realizing the strength of the movement.—Rochester *Democrat Chronicle.*

Increasing demand of business concerns has led various governments to study seriously the plans for calendar reform.—Greenwood (Miss.) *Commonwealth.*

Through The World Calendar Association the movement has become widespread.—Utica *Observer Dispatch.*

Shifting date of Easter offers no particular difficulty. Most of the major creeds already approve a fixed date.—Baltimore *Sun.*

There are many reasons, business and social, to commend the new plan.—Floral Park (N. Y.) *Gateway.*

Constant additions are being made to the ranks of supporters of calendar reform in the United States.—Amsterdam (N. Y.) *Recorder.*

Calendar reform is a matter essentially international in scope, and the League of Nations is obviously the body through which unified action should proceed.—Brockton (Mass.) *Enterprise.*

General opinion is distinctly favorable to The World Calendar plan.—Olean (N. Y.) *Times.*

The world has been changing so fast during the last 25 years that no calendar 2,000 years old can keep abreast of the times.—Lead (S. D.) *Call.*

It would be distinctly to the disadvantage of business in general to have a 13-month year.—Providence *Journal.*

When the calendar is changed, it will be the result of widespread demands from agencies in charge of economic planning.—Cincinnati *Enquirer.*

Business interests are now being forced to realize that our present calendar is a very poor barometer to go by.—New Haven (Conn.) *Register.*

Against a 13-month calendar there are numerous objections. — St. Louis *Globe Democrat.*

There is a growing sentiment for a better ordered calendar.—Buffalo *News.*

After 1939 we may have no need to change our calendars on the first day of the year.—Los Angeles *Saturday Night.*

The 13-month proposal is so full of drawbacks that it will hardly meet general approval.—St. Louis *Star.*

There is likelihood of general agreement on a reformed 12-month calendar.—Morristown (Tenn.) *Gazette Mail.*

Calendar reform will eventually gain popularity until it is enacted.—Asbury Park *Press.*

You simply cannot maintain any exact comparisons under the present calendar.—New York *Journal of Commerce.*

Men in all walks of life are interested in reforming the calendar.—Sausalito (Cal.) *News.*

We must reject the year of 13 months as dangerous and indeed impossible.—Arkansas *Methodist.*

Opinion is overwhelmingly in favor of the 12-month plan.—University of Toronto *Monthly.*

The World Calendar is approved by practically everybody who examines it.—Toronto *Pathfinder.*

It is both desirable and feasible to introduce a perpetual 12-month calendar—Nottingham (England) *Guardian.*

Hardly a day passes in which we are not caused unnecessary trouble by the clumsiness of our comic calendar system.—London *Home and Empire.*

Progress is being made throughout the world toward revision of the present calendar.—Chicago *Marking Devices.*

It is generally conceded that the present calendar system is out of date.—Erie (Pa.) *Bulletin.*

Calendar reform is attracting increasing attention, and is well deserving of endorsement.—Milwaukee *Living Church.*

JOURNAL OF CALENDAR REFORM

EDITORS

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EFFECTIVE leadership among business organizations on behalf of The World Calendar has been taken by the Chamber of Commerce of the State of New York. Among its members are to be found outstanding and influential leaders in the industrial, commercial and financial world in America.

It is significant that the action of the New York State Chamber was taken only after a year of exhaustive study by a special committee, composed of five men prominent in the American business world. It is significant also that their report, with resolutions, was placed in the hands of the members of the Chamber five days before the meeting, and was then formally adopted by a unanimous vote, with nearly 400 members present.

"It seems conclusively established," says this report, "that calendar reform is a matter of sufficient importance to warrant the great effort necessary to win for it general and world-wide approval."

There can be no doubt that the considered action of the New York Chamber will have a widespread influence. It has already been transmitted, in official communication, to the London Chamber of Commerce, and copies are also being sent to every other important Chamber throughout the world. Many of these bodies will doubtless take similar action, thereby registering a united sentiment on the part of business and commerce in favor of calendar revision.

In another part of this issue of the Journal is to be found a summary of the report recently issued by the American Statistical Association. This document gives strength and impetus to the continuous progress of calendar reform, reflecting as it does, a predominance of opinion among scientifically-minded business specialists, not only for a new calendar, but also for the type of revision advocated by The World Calendar Association.

FROM THE MAILBAG

This change is as desirable as it is inevitable.—Ray Stannard Baker, Amherst, Mass.

I am very much interested in this movement.—D. L. Helfferich, Vice-Pres., Gimbel Bros., Philadelphia.

Personally I heartily endorse The World Calendar. I find nothing in our church organization that will disfavor this forward movement. — Geo. McAhren, Clergyman, Circle, Mont.

Keep up the good work. Today I gave a talk on calendar reform at our Kiwanis Club.—Gerald Giving, Madison, S. D.

Easter ought to be always at the same time each year.—J. Sigfrid Edstrom, Pres., Swedish Gen. Elec. Co.

I have found much material offered in the Journal useful in my presentation of calendar reform.—F. C. Levin, State Teachers' College, Fredericksburg, Va.

Following with interest the development of The World Calendar, I anticipate its adoption in the very near future. —Rev. R. L. Brohawn, Baltimore.

Your proposals for calendar reform appeal to me as reasonable and rational. Their acceptance and adoption will follow the efforts you are making.—F. S. Holmes, Agri. Exp. Sta., College Park, Md.

From an accounting standpoint, a 12-month year by all means.—H. L. Sawyers, Accountant, Las Cruces, N. M.

Am in hearty agreement with The World Calendar and hope the change can be made soon.—H. L. Bates, Dean Emeritus, Pacific University, Forest Grove, Ore.

I do believe that the adoption of the most suited reform calendar would be denoting a signal progress and be helpful in very many ways.—C. J. Schaer, Manager, Chase Natl. Bank, Puerto Rico.

I wish to inform you that I will gladly give my attention to this interesting matter of calendar reform.—Leopoldo Eijo Garay, Bishop of Madrid-Alcala, Madrid.

Hope The World Calendar may be adopted at the next most convenient time. —R. W. Boreman, Carn. Tech., Pittsburgh.

Prefer 12-month equal-quarter calendar and think the United States Government should legislate to sponsor this calendar. —G. E. Parr, Boston.

I approve of the 12-month World Calendar, not the 13 per year. Why incur needless opposition?—L. L. Putnam, Accountant, Chicago.

Modern agitation for calendar reform has resulted chiefly from economic and social needs. There can be no doubt that a more efficient arrangement of the calendar would be a benefit. — Dr. Hans Platzer, Director-General German Statistical Office, Berlin.

The World Calendar is a much better method of counting time than the proposed 13-month one. I am in favor of it.—W. P. Sears, Jr., Lecturer, N. Y. Univ., New York.

Your Journal is both interesting and informative.—H. H. Bronson, Lawyer, Grand Forks, N. D.

The 12-month plan, while instituting the needed social reforms and meeting the problem of farm life in relation to church work, will not encumber research and factual comparison with previous years nor the study of history.—R. Goodfellow, Congregational-Christian Church, Britton, Mich.

We are very much interested in calendar reform and are 100 per cent for the 12-month calendar.—R. Pinder, Lumberman, Effingham, Kan.

The Journal can not be improved. It presents the matter so clearly and free from bias or faddism.—Bishop George W. Plummer, N. Y.

Your World Calendar is a most sensible reform and is certainly worthy of much more public consideration.—P. E. Heckel, Cincinnati Bickford Tool Co.

The World Calendar meets with my hearty approval.—Dr. W. Campbell, Surgeon, Valley City, N. D.

I am much interested in the new 12-month calendar.—G. Winchester, Prof. of Physics, Rutgers Univ., N. J.

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